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CLIMATE CHANGE: STATE AND LOCAL PERSPECTIVES

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

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CLIMATE CHANGE: STATE AND LOCAL PERSPECTIVES

THURSDAY, MARCH 15, 2007

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY
AND AIR QUALITY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 11:15 a.m., in room 2322 of the Rayburn House Office Building, Hon. Rick Boucher, chairman, presiding.

Members present: Representatives Butterfield, Barrow, Inslee, Baldwin, Ross, Dingell, Hastert, Shimkus, Shadegg, Myrick, and Barton.

Also present: Representative Wilson.

Staff present: Sue Sheridan, Bruce Harris, Lorie Schmidt, Chris Treanor, David McCarthy, Thomas Hassenboehler, Kurt Bilas, and Peter Kielty.

OPENING STATEMENT OF HON. RICK BOUCHER, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF VIRGINIA

Mr. BOUCHER. The subcommittee will come to order. This morning our climate change hearing focuses on the activities of State and local governments that have been active in addressing greenhouse gas emissions.

California has enacted legislation setting mandatory greenhouse gas reduction requirements targeting the achievement of 1990 emission levels by the year 2020. California has also undertaken other steps including a low carbon fuel standard, a greenhouse gas registry and a motor vehicle standard.

Five western States have recently formed the Western Climate Action Initiative through which they have committed to set a joint greenhouse gas emissions reduction goal that would be achieved through implementation of a market-based program. Ten northeastern States have joined or expressed their intention to join the Regional Greenhouse Gas Initiative, which will limit carbon dioxide emissions from electricity-generating facilities through implementation of a cap-and-trade program.

Local governments are also taking actions with regard to the goal of reducing emissions. These activities include improving government vehicle efficiency through the use of hybrids, switching to light-emitting diodes for traffic signals, changing local building codes, developing alternative fuel infrastructures and capping methane gas from landfills. More than 415 mayors in communities representing more than 60 million Americans in all 50 States have signed the United States Mayors Climate Protection Agreement under which they agree to reduce community-wide greenhouse gas emissions by the year 2012 to at least 7 percent below 1990 levels.

Today's witnesses will describe these various greenhouse gas reduction strategies and the policy considerations that led to their adoption. The information to be presented this morning will enable this committee to learn from the experience of State and local governments and we will very much welcome the suggestions from our witnesses today about appropriate directions for United States policy on the critical subject of climate change.

Pursuant to the rules of the committee, members may now make opening statements, and any member who elects to waive his or her opening statement will have the time allotted for that opening statement assigned to that period during which that member may propound questions to our witnesses today.

We also welcome to our subcommittee today Mrs. Wilson from New Mexico who, while not a member of the subcommittee, is a member of the full committee and we are very glad to have her participation in our subcommittee meeting.

At this time I am pleased to call on the ranking Republican member of the Energy and Commerce Committee, the gentleman from Texas, Mr. Barton, for a 5-minute statement. Mr. Barton.

OPENING STATEMENT OF HON. JOE BARTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BARTON. Thank you, Mr. Chairman. As you know, we have a subcommittee hearing on spyware that is in progress so I am going to have to give an opening statement upstairs and hopefully maybe come back to this. So I am not being impolite if I have to run off.

I am not at all convinced that we have to rush to legislative action on this issue, as you well know, but I am very supportive of you and Chairman Dingell building a fact-based record on the issue and very supportive of the cooperative effort in which you are holding these hearings in terms of arranging for witnesses. So we are supportive of the process. I am still skeptical there needs to be a legislative solution.

It is important that we hear the input from our State and local witnesses on the impact of some actions that we might consider taking in Washington with respect to climate change. This is an important issue and our State and local governments are going to be where the rubber really meets the road.

Some of the States and regions have decided to move toward some sort of a carbon cap-and-trade scheme. I think that is ill-advised at this point in time and would oppose such a mandatory regulatory scheme if it were to be enacted or attempted to be enacted here in Washington. I am glad to see this week Speaker Pelosi has indicated that any bill on climate change considered this year doesn't necessary have to include a mandatory cap-and-trade scheme. I think that is a move in the right direction in terms of actually getting a legislative solution.

There are many other ideas on how we can lessen carbon intensity, and if we can do it in a cost-effective and a timely fashion, myself and I am sure many other members of the minority are open to some of those ideas. Hopefully our panelists today will have some ideas in that regard.

This hearing has several important issues that it is going to raise. First and foremost is the cost of these programs, whatever they are, in terms of implementation at the State and local level. Also, what is the cost going to be in jobs? What is going to be the cost in economic growth? I am told that a representative from the California legislature said last fall at a conference that California's recent global warming bill, A.B. 32, only had two legislative requirements: No. 1, that it cause pain, and No. 2, that it change behavior. We have a representative from California here today and we will be able to ask that witness if that is a true statement. I am curious to find out, if it is a true statement, exactly how much pain the California legislature feels it has to inflict on their constituents in the name of global warming. I would like to know what life-altering changes their constituents are expected to make so that we can be politically correct on global warming.

The second issue that I want to get some input on today is, what are the actual environmental benefits, not perceived but actual, when you keep in mind that H^20 water vapor is 95 percent of all greenhouse gases, that CO^2, carbon dioxide, is 4 percent of greenhouse gases, and that the man-made portion of CO^2 is 0.001 percent, one-thousandth of 1 percent of the atmosphere, you begin to question exactly how much benefit there is going to be if we have some sort of a mandatory CO^2 sequestration program. If you are only managing one-thousandth of 1 percent of anything, it is hard to affect the 99.99 percent of the rest of the item that you are trying to manage.

The third issue is cost-effectiveness: what is the long-term prospect of some of these mandatory programs? If we only have State and regional programs and you have got a worldwide problem, exactly how effective are they going to be? China is adding one 500-megawatt coal-fired power plant every week. Every week. China will soon surpass the United States as the single largest emitter of man-made greenhouse gases. It really doesn't make much difference what we do in the United States if China is going to continue to add these coal-fired power plants every week on an ad infinitum basis into the future.

When we look at what Europe has done to try to implement the Kyoto Protocol, we found out that they have had some success in raising electricity prices. In Germany alone, the wholesale price of electricity has gone up 40 percent because of what they have had to do to implement Kyoto. Forty percent. In our hearing last week about the new technologies for carbon sequestration, the minimum cost increase was 25 percent, and one of the witnesses said there would be 100 percent cost increase if we implemented CO^2-friendly coal-fired technology immediately. Now, to be fair, Mr. Boucher pointed out that as we come up the learning curve, the cost of some of those technologies will go down.

But my main point is, if we do things in the United States that cost us jobs and the only effect is to send those jobs to China or

India, we are really not doing our constituents much of a favor. Our most abundant and lowest energy cost source right now for electricity generation is coal. It is the cheapest by an order of magnitude of about 80 percent. We simply must find a way to use our coal resources that are environmentally friendly and also cost-effective.

With that, Mr. Chairman, I want to yield back the balance of my time but I do look forward to this hearing. I hope I can come back after going upstairs.

Mr. BOUCHER. Thank you very much, Mr. Barton.

The gentleman from Michigan, Mr. Dingell, the chairman of the full committee, is recognized for 5 minutes.

OPENING STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. DINGELL. Mr. Chairman, I thank you for recognizing me and I thank you and commend you for calling this hearing on State and local perspectives on climate change.

I want to begin by thanking all of our witnesses for making the trip to Washington to testify today.

To Mr. Curry, I would observe it is our hope that you will give our best regards to Governor Richardson, who is not only a good friend of mine but also who served with extraordinary distinction on this committee and has always made us proud that he is one of our graduates.

Now, over the past few years, many State and local governments have spent considerable time and effort in looking at the issue of climate change and developing programs to reduce greenhouse gas emissions. The pace of their activity is increasing. Today we will hear from leaders in this area.

This hearing is important for two reasons. First, our system of governance. The State and local governments serve as laboratories for developing and testing novel approaches to emerging problems. This hearing gives us an opportunity to benefit from the work done and the lessons learned by State and local governments. For example, the State of California has taken a new approach to reducing carbon emissions from fuel from motor vehicles. Rather than adopting a biofuel mandate, California has announced a new low carbon fuel standard designed to reduce the fuel's life cycle carbon emissions. I think it would be useful to understand both the benefits and the drawbacks of this program.

Second, when the States act independently of the Federal Government, these actions can create a regulatory patchwork that unnecessarily creates inefficiencies and hinders economic growth. Other Federal environmental statutes have been driven at least in good part by concerns raised by multiple State regulations all addressing the same problem, and I would note that one of the reasons for the Constitution was the multiplication of State regulations and impairments to commerce amongst the States in those early days.

In these cases, we look to action to address the problem nationally as a way of leveling the playing field across the country and reducing inefficiencies and burdens on interstate commerce. For example, California, New Jersey and New Mexico are all part of regional greenhouse gas initiatives that are intended to cap emissions in participating States. I am interested in hearing whether there are concerns that such regional approaches can put their businesses at a competitive disadvantage compared to businesses in other States or concerns that multiple State programs will make life unnecessarily complicated for companies that operate in multiple States.

I am pleased that Mayor McCrory is here today. The involvement of our mayors on climate change is quite interesting, given the global rather than local nature of the problem. More than 400 mayors representing over 60 million citizens across the country have signed a pledge to reduce greenhouse gas emissions, demonstrating widespread concern amongst our citizens regarding climate change. I look forward to hearing what local governments are doing to address this problem.

As we have heard over the course of climate change hearings, there is no single silver bullet that will do the job. There is no easy way out of the problems we confront. It is clear that climate change must be addressed through a broad array of actions at all levels of government. I look forward to hearing more about the actions of State and local governments, what they are doing and are contemplating undertaking.

I would also like to close with a word directed to my colleagues. I know some of my colleagues here wish we were not addressing climate change and I know others are moving more slowly. There are a number of reasons why we need to address climate change at the Federal level. Today's hearing focuses on just one of those reasons. States are making it quite clear they will act to address climate change, and therefore the Federal Government must act in appropriate ways.

Mr. Chairman, I again commend you. I thank you for your recognition and I commend our panel for being present with us today. Thank you.

Mr. BOUCHER. Thank you very much, Chairman Dingell.

The gentleman from Illinois, Mr. Shimkus, is recognized for 3 minutes.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. Thank you, Mr. Chairman.

I want to welcome the panelists. It is going to be an interesting discussion and debate I think because of the cap-and-trade positions of some of the States. The ranking member's position is pretty compelling because I think you will probably call upon us to do something nationally, and our position is, at least some of us who are somewhat skeptical but open because of our chairman is that if you call for us to do something nationally and we can't get anything internationally done, it is really the same debate. If we don't have States moving in the same direction you are moving, then you are disenfranchised. If we can't get the world to move in our direction, then we are going to be disadvantaged and I just want to throw that out as part of the reason why some of us are concerned.

Our first hearing told us that a cap-and-trade system in Germany raised wholesale electric prices 40 percent, so again, that is the bottom line what we are talking about, jobs and the economy. China is building, as the ranking member said, equivalent of a 500-megawatt coal-fired power plant each week, and if we don't have an ability to affect that, what are we killing ourselves for.

Also, the addressing of individual State's problems of site transmission lines. If we want to move to renewable clean power, States have to help us site transmission lines and there is going to be huge problems in the New England area if they don't move and address this. Now, we helped in the energy bill with the transmission legislation which I think has empowered Texas and some of the wind power issues that they are going to be discussing but this is a more comprehensive debate and that is why I appreciate Chairman Boucher because he does understand the comprehensive nature of this debate.

Finally, there will be things I pick on California for but I do want to talk about something positive. I am from Illinois, but believe it or not, I have been working with the Port of Long Beach and in the Port of Los Angeles and they want to expand their ability to do the job that they do so well by moving to 5,300 LNG trucks, 5,300 clean diesel trucks, primarily run on biodiesel—there is the Illinois connection—and they are doing this to be able to expand their capacity without having a cap-and-trade system. So they have got to meet the stringent requirements of California, especially in that area, and they are going to do it through fuels, through innovation without any additional regulations. That is where a lot of us are coming from on our side to make sure that we don't lose our ability to be competitive in this world and many of us fear that if we aren't careful, there is going to be great price increases and job loses.

With that, Mr. Chairman, I yield back.

Mr. BOUCHER. Thank you very much, Mr. Shimkus.

The gentleman from North Carolina, Mr. Butterfield, is recognized for 3 minutes.

OPENING STATEMENT OF HON. G.K. BUTTERFIELD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mr. BUTTERFIELD. Mr. Chairman, I too want to thank you for convening this hearing today. You promised us several weeks ago when we began this Congress that you would bring forward the brightest and best witnesses that we could possibly get and I thank them for coming forward today to participate in this very important hearing.

I particularly want to welcome the mayor of the largest city in my State, Mayor McCrory. Thank you so very much for coming.

This is an important issue. I think we can all agree on that. We certainly have a substantial disagreement about how we are going to deal with climate change but it is absolutely an important issue and we need to develop our policies not within the Beltway only but we need to get input from our State and local governments.

I look forward to your testimony today. What you have to say to us is very, very important. Thank you for coming.

I yield back.

Mr. BOUCHER. Thank you very much.

At this time I am pleased to recognize the ranking Republican member of our Energy and Air Quality Subcommittee, the gentleman from Illinois, Mr. Hastert, for a 5-minute statement.

OPENING STATEMENT OF HON. J. DENNIS HASTERT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. HASTERT. Thank you, Mr. Chairman, and Mr. Chairman, thank you for holding this hearing today on State and local perspectives of climate change.

States are laboratories for democracy. It will be interesting to learn what State and local jurisdictions are doing with regard to the climate change issue. The number of hearings that we are holding attest to the fact that the subject of climate change is very complex and important. The different paths followed by State and local jurisdictions can help us understand which policies may work best or not at all. Some of the States here today are moving towards a cap-and-trade program for CO^2. While it appears that we were precipitously moving in that direction as well, many of the witnesses we have heard from earlier hearings extolled the virtues of a cap-and-trade program. Speaker Pelosi has taken that option off the schedule for now. I agree that we should not be doing a bill to create a CO^2 cap-and-trade system in only a few months. Such significant changes in policy should be carefully considered by this committee even before being attempted.

As we learned a few weeks ago, compliance costs associated with the Kyoto cap-and-trade scheme drove up wholesale electricity prices in Germany about 40 percent. I am concerned that a cap-and-trade scheme will make electricity in the United States similarly more expensive. I am worried that the locals proposing or considering a cap-and-trade system are just those areas with already high electricity prices and severe reliability concerns.

California has some of the highest electricity prices in the country and well-known market reliability problems. It is consistently on the Federal Energy Regulatory Commission's watch list for summer power problems yet it has the strictest global warming law of any State in the Nation. Similarly, New England has high electric prices and chronic reliability problems and yet it is contemplating a cap-and-trade system. In both these areas, it is notoriously difficult to site new generation and transmission. Localized efforts to cap carbon do not even make it any easier or more economic to solve these critical problems. As a matter of fact, in New England, the effort to put in the wind energy, which is a very green energy, was stopped by many of the people who didn't want it in the Cape Cod area, in fact, just the opposite.

Abundant and affordable power supply is the key to our economic growth. I want to hear from some of our witnesses today how they can solve their electricity pricing and reliability problems and encourage robust economic growth. I am concerned that some of these State and local plans while well intentioned may lead to unintended consequences. Increased energy efficiency, the use of more renewable energy including more ethanol and taking advantage of technological advantages that allow us to better utilize our abundant supply of coal are all things that I can and do support. We need to be careful, however, when we consider any energy policy that we do not stifle economic growth. The Energy Policy Act of 2005 took the balanced approach that I just have described. I believe we should build on the recent progress that we have made and look for additional ways to accelerate our progress down the road to energy security.

I look forward to the testimony today. I hope to learn from the States and local experience, and I thank you, Mr. Chairman. I yield back.

Mr. BOUCHER. Thank you very much, Mr. Hastert.

Mr. Barrow from Georgia is recognized for 3 minutes.

Mr. BARROW. Thank you, Mr. Chairman. In lieu of an opening statement, I ask unanimous consent to submit for the record the statement of my good friend, the mayor of Atlanta, the Honorable Shirley Franklin.

Mr. BOUCHER. Without objection, that will be received for the record.

Mr. BARROW. Ms. Franklin endorsed the mayors' agreement almost two years ago. On a truly personal note, I am pleased to report that my even better friend, the Honorable Otis Johnson, the mayor of my hometown, Savannah, Georgia, informs us that the city of Savannah, their council will be endorsing the agreement in the next month or so.

With that, I yield back. Thank you.

Mr. BOUCHER. Thank you, Mr. Barrow. We will interpret that as a waiver of your opening statement and add additional minutes to your time for questioning.

The gentlelady from Charlotte, Mrs. Myrick, is recognized for 3 minutes.

OPENING STATEMENT OF HON. SUE WILKINS MYRICK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mrs. MYRICK. Thank you, Mr. Chairman, for holding the hearing and I want to welcome our mayor from Charlotte as my colleague has done and thank him for being here.

This is a real challenging issue that all of us face and something that we are going to have to do together. No one entity can do it by themselves, and our concern, very frankly, is that we do have cooperation in finding out what the real story is and how we move forward and not move forward so fast from the standpoint that we make mistakes. Up here in Washington we tend to do that periodically and that can be very detrimental to our States and local governments and we have seen that in the past. As a former mayor—I am Pat's predecessor—we have been dealing with these issues for a long, long time so I am very interested in hearing all of our panel's comments and concerns and anything you can share with us that helps to make our job a little easier, and I thank all of you for being here.

I yield back.

Mr. BOUCHER. Thank you very much, Mrs. Myrick. The gentlelady from Wisconsin, Ms. Baldwin, is recognized for 3 minutes.

OPENING STATEMENT OF HON. TAMMY BALDWIN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Ms. BALDWIN. Thank you, Mr. Chairman. I am pleased that we are recognizing States and localities for actions they have taken to address climate change. Many of the communities represented here today have enacted policies or programs that will reduce their overall greenhouse gas emissions while also benefiting their local economies and residents. Their actions demonstrate that it is possible for us to create meaningful, coordinated and economy-wide climate change policies at the national level that will help us reverse global climate change trends and also lead us in the right direction toward reducing our dependence on foreign oil.

I have in the past proudly mentioned my home State of Wisconsin because of its long leadership in environmental stewardship. Our former Senator and Governor, Gaylord Nelson, envisioned a world where our pristine oceans and lakes are protected, where our air is clean to breathe and our planet preserved for future generations to enjoy. His efforts in organizing a nationwide grassroots demonstration on behalf of the environment led to the creation of Earth Day and triggered congressional action on some of our most treasured environmental laws: the Clean Air and Water Acts and the Safe Drinking Water Act.

With his vision in mind, last year Wisconsin passed a renewable portfolio standard that establishes renewable energy and energy efficiency standards. As a result of this action, by 2015 Wisconsin will avoid 5.5 million tons of greenhouse gas pollution. Our State has also adopted a climate change action plan which serves as a guide for how we plan to reduce our greenhouse gas emissions over the coming years. Among our targets is to increase production of cleaner fuels such as ethanol and biofuels. Wisconsin will soon be producing almost 400 million gallons of ethanol annually and we are on the right course to become one of the first States with cellulosic ethanol production from wood pulp.

Mr. Chairman, in Wisconsin it is clear that Gaylord Nelson's legacy continues on. We are committed to protecting and respecting our environment and natural resources but the actions like those of the communities represented by our witnesses here today cannot be the only steps taken to address global climate change. Rather, they must serve as models for national action because now is the time for Federal leadership in this arena.

I look forward to hearing from our witnesses today about how we can learn from initiatives in your communities and States to create the sound policy that will address the challenges of climate change at the national level.

Thank you, Mr. Chairman. I yield back my remaining 14 seconds.

Mr. BOUCHER. Thank you very much, Ms. Baldwin.

The gentleman from Arizona, Mr. Shadegg, is recognized for 3 minutes.

Mr. SHADEGG. I thank the gentleman for holding this hearing. I am anxious to get to the witnesses' testimony and therefore I will waive.

Mr. BOUCHER. Thank you, Mr. Shadegg.

The gentleman from Washington State, Mr. Inslee, is recognized for 5 minutes.

OPENING STATEMENT OF HON. JAY INSLEE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mr. INSLEE. Thank you.

I want to show my appreciation for the local leadership that has been moving across this country to deal with climate change. It is very inspiring and we hope to emulate some of your work.

I want to put in the record a letter from Mayor Greg Nickels, who has been instrumental in helping mayors across the country move forward on climate change. I appreciate his work.

I want to take issue, because I feel compelled to, on a couple of statistics that my friend, Joe Barton from Texas, spread out about global warming. Of course, they are accurate because Mr. Barton is almost always accurate on statistical information but they are largely irrelevant, and one of the statistics that we have heard him talk a lot about is that carbon dioxide, anthropomorphic carbon dioxide, is a fairly small percentage of the total atmosphere and it is also certainly well less than half of the global warming gases, and that is an interesting but irrelevant statistic for this reason. Actually there are two reasons. One, we have had for eons global warming gases that have swathed our planet and kept it habitable, and that is water vapor, a certain amount of carbon dioxide, megatons of gases which are not caused by humans, but those have always been in balance. They go into the atmosphere and they come out of the atmosphere. CO^2 has gone into the atmosphere and then come out. It has been in balance. Water vapor has gone into the atmosphere through evaporation; it has come out through rain and snow and sleet. It has been in balance. These things have been in balance for eons. What is now not in balance is carbon dioxide and methane that we are adding to the atmosphere, and that is 100 percent of the gases that are out of balance are caused by you and I, the anthropomorphic gases.

So when you hear my friend Joe Barton talk about it being 1 percent or some infinitesimal amount of gases, it may be a small percent of the total gases but it is 100 percent of the gases that are now killing the planet Earth and that is why is sort of like a donut. Your diet may be in balance with what you eat for years but when you start eating extra donuts, the 100 pounds you may gain is what is killing you, and that is what is happening to the planet Earth right now.

Second, he points out accurately that man-made CO^2 is a very small percentage of the total gases in the atmosphere but when you take some arsenic, it is a very small percentage of your total volume of your body mass but if that is what kills you, you should be concerned about it. So I want people not to be misled about small statistics, these are small numbers, except for the number that almost 100 percent of the gases that are out of balance right now are caused by human activity and that is why we are here today.

So I just want to express thanks to cities and States moving forward and look forward to hearing from you. Thank you.

Mr. BOUCHER. Thank you, Mr. Inslee.

The gentlewoman from New Mexico, Mrs. Wilson, is recognized for 3 minutes.

Mrs. WILSON. Thank you, Mr. Chairman.

I just wanted to welcome Ron Curry here to the committee and look forward to his testimony, and I will waive an opening statement in lieu of questions.

Mr. BOUCHER. Thank you very much, Ms. Wilson. Any other statments for the record will be accepted at this time.

[The prepared statement of Mr. Burgess follows:]

PREPARED STATEMENT OF HON. MICHAEL C. BURGESS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Thank you, Mr. Chairman for holding this hearing.

And I'd like to thank the panel for taking time out of their extremely busy schedules to appear before us today.

Some States and regions are moving towards a cap-and-trade scheme for greenhouse gases. Some, like Texas, are not. California is working on a system now after its law was passed last year.

Yet, Texas has surpassed California as the U.S. leader in renewable energy. In 2005, the State Legislature increased the State Renewable Portfolio Standard from 2,880 MW to 5,880 MW of installed renewable generation by 2015, with an even more aggressive target of 10,000 MW by 2025.

I applaud the Texas State legislature for establishing these ambitious goals, as well as the Public Utility Commission of Texas, represented here today by Commissioner Julie Caruthers Parsley, for setting policies that encourage the use of renewable energy.

Whether it be global warming, peak oil, high prices, or instability in the Middle East, signs point to a day when we need to have energy sources that are not hydrocarbon-based. And some signs may suggest sooner rather than later.

As technology continues to improve, I anticipate that renewable sources will take on an even greater importance in reducing our dependence on foreign energy and reducing emissions of all kinds. I am heartened by reports of new solar panels, for example, that operate in low-light conditions.

I strongly support the use of renewable energy and believe that where it can be installed, it should be. I am, however, concerned about adopting a Federal mandatory Renewable Electricity Standard requirement when individual States, such as Texas and others represented here today, have already made significant improvement in this area on their own.

I look forward to hearing from Commissioner Parsley about how Texas has been able to achieve such success, so we might have the benefit of Texas' expertise in this matter.

I also look forward to hearing from our witnesses about State and local initiatives, including zoning and planning, that encourage efficiency and conservation.

Mr. BOUCHER. At this time we welcome our panel of witnesses, and I am pleased to briefly introduce each of them.

The Honorable Patrick McCrory is the mayor of the city of Charlotte, NC, a city that I would note that I visit frequently, if only at the airport. I will be there later today, as a matter of fact, and I always enjoy it. The Honorable Linda Adams is secretary of the California Environmental Protection Agency. The Honorable Lisa Jackson is the commissioner of the New Jersey Department of Environmental Protection. The Honorable Run Curry is the secretary of the New Mexico Environmental Department. The Honorable Julie Caruthers Parsley is a commissioner of the Public Utility Commission for the State of Texas, and we want to say welcome to each of our witnesses.

Without objection, your prepared written statement will be made a part of our record. I am also going to ask unanimous consent to insert in the record a letter addressed to the subcommittee from the U.S. Conference of Mayors, and without objection, that will be admitted into the record.

We would welcome the oral statements of our witnesses and ask that you limit your statements to approximately 5 minutes.

Mr. McCrory, we will be happy to begin with you.

STATEMENT OF PATRICK MCCRORY, MAYOR, CHARLOTTE, NC

Mr. MCCRORY. Thank you, Mr. Chairman. I encourage you to get off the plane and get out of the airport the next time you come through Charlotte, and spend some money too.

Sue, it is great working with you. I was a young 32-year-old city council member when Sue was the mayor 18 years ago of Charlotte, North Carolina. I hate to rub that in, Sue, but it has been a long time.

I want to give you a brief perspective of what it is like to be a mayor and dealing with the balance that you were just talking about on all sides of the aisle. In fact, I told you a story in my testimony about having the difficult task with my brothers and sisters of cleaning out a drawer in my parents' house. I have lost both my parents this past decade and my mom just this past year. And in cleaning out the drawer, I found a 1962 political brochure that my dad used in a city council race in Worthington, Ohio, and in the brochure it said the following: "We must walk the fine line between the growth and the preservation of values which brought many of us here. In this way we can be certain that new families and desirable industry will continue to be attracted to Worthington." Well, 40-some years later you can replace Worthington with Charlotte or Columbus or any city represented in this dais because we are trying to walk that fine line between protecting our values and our environment along with continuing the economic vitality where we can put food on the plates of the families in each of our cities, and that is the fine line that mayors are working on across the Nation.

I must say as mayor of the city of Charlotte for the past 12 years, walking that fine line doesn't mean you step on toes. I have stepped on toes on people on both the right and the left of the political spectrum. On the right, right now I have people wholly against my mass transit plan for the next 30 or 40 years who believe that we should only build roads and that will solve our transportation and environmental problems. I am a firm believer that we have a mass transit and a land use plan for the next 25 to 35 years to prepare for growth in the future. I also implemented tree ordinances, the most aggressive tree ordinances in the Nation, for both residential and commercial properties and we are looking at other properties of industrial zoning. We are also looking at sidewalk ordinances. I passed my first year as mayor one of the most aggressive sidewalk ordinances where you have to have pedestrian-friendly access and connectivity. I had to implement several vetoes to get this implemented in the city.

However, also on the left I have stepped on some toes. I have people on the left who want to implement mass transit everywhere, even where it doesn't work, out of fairness and I fight those efforts also. I want to make sure our money is spent in the right place and at the right time. I also have had people on the left who fight liability efforts to decrease the liability of people investing in

Brownfields and I also have people on the left, despite the issue of global warming and climate change, never even mention the word nuclear power or clean coal. It is nowhere in their vocabulary and it is not a part of their discussion, and we have got to move people to the center to find this balance between energy needs, job needs with environmental needs and that is what I am intending to do as mayor of Charlotte, North Carolina.

Why cities are so important? For example, our growth is increasing by 49 percent during this next 15 years. It is increasing by 80 percent automobiles during that same period of time. I have to look at what our air quality will be for the next generation, especially during hot summer days in July and August in Charlotte, North Carolina.

Now, what are we doing? We are implementing the tree ordinances, we are implementing buffer requirements, we are implementing bike lanes, pedestrian-friendly access. We have got the business community involved in Clean Air Works, a voluntary program where the business community not just in Charlotte but the entire region which crosses city boundaries, State boundaries, community boundaries to get them involved, especially during high-ozone days. We are also implementing things with regional governments to make sure we have consistent land use policies so we don't have developers leapfrog regulations which encourage sprawl. That has a major impact on the environmental policies that we are implementing in cities. By the way, we are also implementing nuclear power in our region, which is very positive on our area. I have two nuclear power plants within 20 miles of Charlotte, million-dollar lots right next door. I wish I would have invested in them 20 years ago and I did not. But we are very, very proud of our clean energy and nuclear power.

The U.S. Conference of Mayors is also working on this, and I work with my fellow mayors like Shirley Franklin and the mayor of Seattle in 10 points in which we are looking at block grants, which can encourage cities to implement good environmental policies and energy policies as opposed to just having a stick approach in that effort.

I look forward to discussing more of these efforts in detail. My dad was right: We all must balance our efforts between a viable economy and also a clean environment. Thank you very much.

[The prepared statement of Mr. McCrory appears at the conclusion of the hearing.]

Mr. BUTTERFIELD [presiding]. Thank you, Mr. Mayor, for your testimony.

At this time the Chair recognizes Secretary Adams, for 5 minutes.

STATEMENT OF LINDA ADAMS, SECRETARY, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, SACRAMENTO, CA

Ms. ADAMS. Good morning, Mr. Chairman, and members of the committee.

I am Linda Adams, California's secretary for Environmental Protection. On behalf of Governor Schwarzenegger, thank you for inviting me to testify today. Today I will describe California's process for developing our climate initiatives and explain the various programs we have in place or are developing to meet our climate goals.

First I want to commend the committee for this series of hearings on climate change. Climate change is one of the most pressing environmental and economic issues of our time. If unaddressed, the consequences are frightening. Addressing climate change is no small task but the first step is political leadership. That is why I am thankful that this committee and Congress as a whole is addressing this issue in a very serious manner.

California's climate initiatives began with a similar act of political leadership. In June 2005, Governor Schwarzenegger announced he signed an executive order laying out his goals for addressing climate change. He committed California to reduce its greenhouse gas emissions to 1990 levels by the year 2020. He also established a Climate Action Team, which I chair, consisting of cabinet-level decision makers from the various State agencies that have authority to reduce greenhouse gas emissions from their respective jurisdictions. Last March the Climate Action Team released a blueprint report for how California could reach the 2020 goal. I would like to submit a copy of the executive summary of this report into the report, and it has been delivered to the committee. The report made a series of high-level recommendations including, one, to develop a multi-sector market-based system to reduce greenhouse gas emissions in a cost-effective manner that both protect economic growth and encourages innovation; two, mandate emissions reporting from the largest sectors; three, conduct an economic analysis to inform policymakers on the most cost-effective measures to reduce greenhouse gas emissions; four, accelerate regulatory measures such as the renewable energy portfolio and energy efficiency standards; and last, educate the public to ensure that all citizens understand the significance of climate change and steps they can step to mitigate it. The report also laid out over 40 specific strategies that could be employed to reach our goal.

The purpose of this exercise was not to commit California to each strategy but to demonstrate that a combination of strategies could be implemented to achieve these goals. The report included a series of scenario analyses of the potential impacts of climate change on California. These research documents were collected from some of California's most renowned climate scientists. In July 2006, these analyses were summarized in another important document, which I would also like to submit to the record and that report has also been delivered.

Mr. BUTTERFIELD. Without objection, it will be received.

Ms. ADAMS. Thank you.

That document called "Our Changing Climate" highlights the various effects of climate change on California including a potential loss of 70 to 90 percent of the Sierra Nevada snow pack, which serves as our largest free water storage reservoir. Sea level rise affecting the livability and economy of coastal areas; saltwater intrusion into the California Bay-Delta, which supplies drinking water to 23 million Californians; heat waves that worsen air pollution and jeopardize public health; and significant damage to California's valuable agriculture industry. This report demonstrates that there is a heavy toll to pay economically, environmentally and socially if we do not address climate change.

The California legislature responded to the Governor's goals by passing A.B. 32, the Global Warming Solution Act. That bill gave my California Air Resources Board broad authority to reduce greenhouse gas emissions from significant sources. The bill allows a market-based approach and calls for enforceable caps to be in place by 2020. The Governor signed the bill in September 2006 and we immediately began implementation. In October the Governor issued an executive order calling on the Air Resources Board to develop a multi-sector market-based compliance system that could permit trading between the European Union and the Northeast Regional Greenhouse Gas Initiative and others. It also called on me to create a market advisory committee of national and international experts to advise on the design of a market system. I announced that membership in December and they have met twice already.

Mr. Chairman, I am worried that I am running out of time.

Mr. BUTTERFIELD. Yes, your time has expired. We have a copy of your written testimony, I believe. Yes. Would you like to make a final statement?

Ms. ADAMS. Yes. The final statement is that as Congress considers legislation to address global warming, I would recommend that you consider several key principles. One, to set an overall cap on emissions; two, to design a system that allows all sectors of the economy to participate; three, allow for market mechanisms that encourage new technology; four, invest in scientific research; five, promote public education; and six, remain open to new ideas.

[The prepared statement of Ms. Adams appears at the conclusion of the hearing.]

Mr. BUTTERFIELD. Thank you. Thank you very much.

Commissioner Jackson, you are recognized for 5 minutes.

STATEMENT OF LISA P. JACKSON, COMMISSIONER, NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, TRENTON, NJ

Ms. JACKSON. Thank you. Good morning, Mr. Chairman, and members of the committee. My name is Lisa Jackson. I run the New Jersey Department of Environmental Protection. On behalf of Governor Jon S. Corzine, I would like to thank this committee for taking the steps necessary to begin tackling this issue of climate change. Governor Corzine has said often that it is not only an economic issue, it is one that is absolutely imperative to the preservation of our planet for our children and grandchildren.

The economic impacts of global warming, I know we will talk about the economic impacts of some of the fixes but the economic impacts of global warming for our State, like many of my colleagues here, could be quite dramatic. We are talking about impacts to the environment, the economy and public safety. New Jersey has 127 miles of coastline. It has a vibrant and active port and a vibrant and active agricultural sector in addition to the tourism that comes with our wonderful coastline.

In response to the challenges of global warming, just a few weeks ago Governor Corzine recently issued an executive order that set statewide targets for stabilizing New Jersey's greenhouse gas emissions at 1990 levels by 2020. Further, his order looks long term by setting a standard of reduction of 80 percent from current levels by the year 2050.

I think it is important to recognize, as many of you have, that New Jersey is not the only State that is moving forward with global warming targets and challenges and solutions. In fact, many States have already moved in that direction.

I am here to speak a bit about the Regional Greenhouse Gas Initiative that nine and soon 10 States in the Northeast have embraced to deal with greenhouse gas emissions from the electricity generation sector in our State. I note that a number of the RGGI States are represented on your subcommittee and we certainly want to thank each and every one of them from New Jersey for the hard work that they have put in to make the Regional Greenhouse Gas Initiative as successful as it is doing so far as we move toward implementation. Additional States, clearly California, Arizona, New Mexico, Washington and Illinois, have also all set aggressive greenhouse gas targets. RGGI is the first ever cap-and-trade program addressing CO^2 in the United States. The proposed program will require electric power generators in participating States to reduce carbon dioxide emissions. Reductions targeted are to stay at approximately current levels through 2014 and then to reduce emissions 10 percent below current levels by 2018. That is actually a 16 percent reduction from business as usual projections. We also intend to auction up to 100 percent of New Jersey's allowances under RGGI to support consumer benefits. Revenue from the auction of these allowances will be used to support energy efficiency and clean energy technology across sectors and help to reduce the impact to electricity ratepayers.

While I am here today to talk to you and answer any questions that the subcommittee may have about RGGI and I am happy to do that, I would be remiss if I did not take the opportunity to reiterate Governor Corzine's strong call for Federal action to set minimum requirements on the issue of climate change and greenhouse gases. As a former CEO, Governor Corzine is certainly not interested in pursuing a path that would lead our State or our people to a place where we are not economically competitive. On the contrary, he believes very firmly and strongly that stepping up to address climate change now is an economic opportunity, that technological advances in the past in our country have lead to great economic innovations and economic success, and he believes that by moving forward quickly now, New Jersey will be poised to address what will be one of the greatest technological challenges of our era.

For that reason, I would ask today that this Congress redouble efforts to come up with strong national laws that regulate greenhouse gas emissions, and attached to my testimony that has already been submitted are principles that we, the RGGI States, have talked about and discussed as necessary for that kind of regulation including the fact that it be based on strong science-based reductions on the order of 80 percent is what our scientists say we need in order to address this issue, that it be portfolio-based, that it include energy efficiency and CAFE standards, and that it acknowledge the fact that State action is fundamental to moving forward and that those actions in the States not be preempted by weak Federal regulations.

In closing, I would like to say that New Jersey, like many other States and jurisdictions here, is a great example of innovation and I look forward to answering any questions you may have.

[The prepared statement of Ms. Jackson appears at the conclusion of the hearing.]

Mr. BUTTERFIELD. Thank you.

Secretary Curry, you are recognized for 5 minutes.

STATEMENT OF RON CURRY, CABINET SECRETARY, STATE OF NEW MEXICO ENVIRONMENT DEPARTMENT, SANTA FE, NM

Mr. CURRY. Thank you, Mr. Chairman, and thank you for inviting us from New Mexico to be here today.

I am Ron Curry. I am cabinet secretary for the State of New Mexico Environment Department and I bring you best wishes from Governor Richardson, who is a happy graduate from this committee.

The Governor has exerted strong leadership in this area since he came into office in 2003. New Mexico is a State that is a lot about water. We are concerned about our snow pack and our water supply in New Mexico because we are in the desert Southwest. We believe that Governor Richardson has given strong leadership in protecting our water supplies through the efforts that we are making through climate change initiatives within New Mexico.

We also believe, and the Governor has made it very clear, that we don't want to do anything that harms our economy in New Mexico. Quite the contrary, we believe that good climate change measures will improve the economy in New Mexico and the United States.

Governor Richardson has focused on four specific points as we have gone through the climate change initiatives. One, in the summer of 2005, Governor Richardson issued an executive order setting tough greenhouse gas emission reduction targets in New Mexico, and this was done as a result of the Climate Change Advisory Group, which was a diverse group of 40 people in New Mexico that was made up of business folks, made up of people from government, made up of environmental advocates and it was a completely diverse group including oil and gas and dairies and out of that came recommendations for climate change action in New Mexico. There were 69 recommendations. Sixty-seven of those recommendations out of this 40-member diverse group were unanimous, and I think that is a tribute to the Governor's leadership and making people understand how important climate change initiatives are to helping New Mexico not only environmentally but with the economy.

In New Mexico, the No. 1 source of greenhouse gas emissions is power production while the No. 2 source is production and processing in the oil and gas sector. Those two industries account nearly two-third of the greenhouse gas emissions produced in the State. The Governor has led on this issue as well. Last week, Governor Richardson signed legislation increasing the State's renewable portfolio standard for the 10 percent renewable energy required in 2011 to 15 percent by 2015 and 20 percent in 2020. The Governor also signed a bill creating the Renewable Energy Transmission Authority, a quasi-governmental agency that will facilitate the transmission of renewable energy within the State and to the markets outside of New Mexico.

New Mexico was the first State under the leadership of Governor Richardson to join the Chicago Climate Exchange. Chicago Climate Exchange is a market-based voluntary cap-and-trade market and New Mexico joined the ranks of duPont and Ford and other private sector companies that have joined the Chicago Climate Exchange. We are a proud member, we are the first State, and we are participating to make sure that in New Mexico the Government itself, which is the participating member, reduces our greenhouse gas emissions. As a member of CCX, New Mexico is committed to reduce greenhouse gas emissions associated with State operations by 6 percent by 2010.

Also as been mentioned, we are a member of the Western Regional Climate Action Initiative, and in the action of strong national climate program, New Mexico is also pushing for market-based solutions at the regional level. On February 26, 2007, Governor Richardson signed a memorandum of understanding with the Governors of California, Arizona, Washington and Oregon creating the Western Regional Climate Active Initiative. This is a major collaborative effort by the western States.

We encourage Congress to learn from States like New Mexico when implementing programs to reduce greenhouse gas emissions. Over the last 30 years of the Clean Air Act, the States have proven themselves as the laboratory for innovation in air pollution control. We ask most importantly that Congress enact a program with mandatory market-based greenhouse gas emission limits that slow, stop and reverse the growth of these emissions. These emission caps and such a program should result in reductions equal to the targets set by Governor Richardson.

We look forward to answering any questions you have and we look forward to continuing to work at the State level and at the regional level to solve this very serious problem.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Curry appears at the conclusion of the hearing.]

Mr. BUTTERFIELD. Thank you, Mr. Mayor.

Commissioner Parsley, 5 minutes.

STATEMENT OF JULIE CARUTHERS PARSLEY, COMMISSIONER, PUBLIC UTILITY COMMISSION OF TEXAS, AUSTIN, TX

Ms. PARSLEY. Thank you, Mr. Chairman and members. Thank you for having us here today, and I have a slightly different perspective than the other witnesses today. The issue of climate change and what Texas will do about it is a legislative issue that they are struggling with even as we speak, just as you are, so that is something they are dealing with in Austin right now. But what I am here to tell you about is what we have done with renewable energy in Texas and I have some recommendations for how it could actually be implemented in other areas.

[Slide shown.]

Just to begin, this next slide is just to show you real quickly, because I will be talking about ERCOT and then out of ERCOT areas. I know you know this already but just as a reminder, there are three interconnections in the United States. Texas is the only State in all three interconnections. El Paso is in the western interconnect, the panhandle and northeast Texas are in the eastern interconnect and we have 85 percent of the load in Texas in ERCOT, which is a wholly intrastate interconnection. Next slide.

[Slide shown.]

The Texas Legislature passed a Renewable Portfolio Standard for Texas. It started out in 1999 at 2,880 megawatts by 2009 and we had surpassed that by 2005. So in 2005 they increased that goal to 5,880 in 2015. Last year we surpassed California as the U.S. leader for renewable energy and actually Texas has the world's largest wind farm that just opened up outside of Sweetwater at 735 megawatts. Next slide.

[Slide shown.]

What has made this a successful program are really three major factors. The first is robust markets for renewable energy, the second is a very significant transmission investment, and three, positive economic incentives for the generators of that energy. Next slide.

[Slide shown.]

Robust markets for renewable energy—when you have a willing buyer and a willing seller, you don't really cap your growth. You can sell as much as somebody is willing to buy and you can buy as much as somebody is willing to sell. And having actual competitive markets in Texas has facilitated this. If you otherwise have a renewable portfolio standard where you just require integrated utilities to buy a certain percentage of their capacity from renewable sources, then that tends to act more as a cap. So that is one of the reasons we have been able to exceed our standards, I believe, is because we do have willing buyers and willing sellers. In fact, earlier this week a coalition of environmental and renewable power generator sent Chairman Kelliher at the FERC a letter arguing that robust wholesale markets were necessary to really promote renewable energy, and I found that very interesting as well. Next slide.

[Slide shown.]

We always hear in Texas about the high retail electricity prices on the retail side and this chart is really just to show you how our electricity prices track the natural gas prices. Seventy-three percent of our generation in ERCOT is natural gas generated, and you can see the big spike in 2005. That was during the hurricanes. Prices have come back down and mitigated somewhat but our prices are quite more expensive than the other areas because we do not have the kind of coal-burning facilities other States do. Even in Texas, the out of ERCOT areas where there is 70 percent coal in those areas, the prices are much lower. Next slide.

[Slide shown.]

The second element, and this is a very important element, is that we have had a very significant transmission investment in ERCOT. We have a socialized rate for transmission costs. If we build the transmission, the costs are all uplifted and spread to all the ratepayers. In this way it has avoided people complaining about cross-subsidization for one program over another and has just allowed us to build what we need to build. In fact, in the next few years we will have $5.3 billion worth of transmission investment in the rolled-in rate and that equates to 7,500 new miles of transmission. So that has been a very important thing. If you can't move the renewable energy from the generation source to the load, there is not much sense in having renewable energy.

One thing that we have also done is, we have a proceeding to designate corridors in Texas and that is something that—next slide.

[Slide shown.]

I would like to suggest as a recommendation. I am beginning to run out of time, so I would like to just say positive economic incentives that have really led to this as well are our Renewable Portfolio Standards but the Federal production tax credit, we have been told by the renewable generators, is actually even more important than that. That is something they count on and something that has really incented that activity. Next slide.

[Slide shown.]

The recommendations that I would make that we have seen that worked in Texas, and can work elsewhere, are significant transmission investment which I think might be able to be done under the transmission corridor power that was given to the Department of Energy, also renewable transmission corridors and possibly socializing those costs, though allowing for regional flexibility. For instance, New Mexico has a renewable program that works very well for them. We have a program that works very well for us. There may be other regions that have the same.

So with that, I will close and answer any questions.

[The prepared statement of Ms. Parsley appears at the conclusion of the hearing.]

Mr. BUTTERFIELD. Thank you for your testimony.

I want to thank all of you. Most all of you stayed right on target with your time and I thank you so very much.

It is now time for questions from the members of the committee. The Chair will yield to himself 5 minutes for the purpose of asking questions.

Mr. Mayor, thank you again for coming. Thank you for your leadership in Charlotte. Your reputation precedes you, and I thank you very much. But Mr. Mayor, given the global nature of climate change, it is not United States climate change, it is global climate change, could you explain to us why you and the other mayors across the country are taking local actions to address this important issue?

Mr. MCCRORY. Well, I think local action, grassroots action can maybe have as much impact on the total environment as any Federal action because at the local level we are making the major land use decisions that determine where growth goes regarding sprawl, regarding where industry is placed and how much we are reliant on the automobile. Many of these things are actually outside the jurisdiction of the Federal Government so we feel very strongly that what we do in our airports, what we do in our Government buildings, what we do in our land development can have a major impact on not just the national environment but the global environment, and I hope that spreads not just to cities like Charlotte or Seattle or Chicago but also spreads to Singapore and cities in Asia and Europe and across the world.

Mr. BUTTERFIELD. When the mayors take their official action and take their positions on this issue and other issues, what forum do you use to do that? Is it a poll? Is it a convention? What is the methodology?

Mr. MCCRORY. We actually go through two separate committees, and one thing I am recognizing which maybe was a mistake, I used to be chairman of both the energy and environment committee and I think to help spread out the chairmanships and things and get more mayors involved, we separated the energy and environment committee so we have lengthy discussions on both the energy and environment committee and that is where we get the details on what types of resolutions we would like to pass. We share ideas and I might add, we steal each other's ideas also.

Mr. BUTTERFIELD. Let me address this question to the distinguished secretary from New Mexico, Mr. Curry. Mr. Curry, you testified that your Governor has entered into an agreement with four other western Governors to establish a cap-and-trade program for greenhouse gases. Could you provide us with more information on that such as what sectors within your economy might be covered and what cap levels and timing may be under consideration?

Mr. CURRY. Mr. Chairman, yes, we will be glad to supply you with all of that. I think one of the most important parts of that collaboration is the fact that we have many things in common and we are going to set our guidelines and our mandates based on those commonalities. Obviously in New Mexico we don't have an ocean like California does yet and we on the other hand, because of the working relationship that Governor Richardson has with Governor Schwarzenegger and the other Governors, we are going to be working trying to recognize the differences between the States and setting the timelines accordingly, and I think what we are going to see out of that is those five States being the leaders in the country because of that type of cooperation.

Mr. BUTTERFIELD. Secretary Adams, let me again thank you for coming and ask you, if the Federal Government were to adopt a cap-and-trade program for greenhouse gas emissions, how would that affect the regional program that New Jersey is involved in? Do you believe that the regional programs would survive?

Ms. ADAMS. Thank you, Mr. Chairman. We will be working with not only the western States but the RGGI States on designing a trading program. California's program is required to take effect January 1, 2012. I have a market advisory committee made up of experts from around the world who really envision an international market. I do have members from the RGGI States on that committee. We are a little bit at risk being potentially ahead of the Federal Government but we hope that we would be a leader in helping to design a market and——

Mr. BUTTERFIELD. Your original program would continue? You wouldn't abandon your original program?

Ms. ADAMS. Absolutely we would not abandon. We hope that we could—we are actually working with 30 other States on a multi-

State registry so we are hoping that we could actually help Congress and the Federal Government design a market.

Mr. BUTTERFIELD. Commissioner Jackson, let me ask you to take a stab at that if would in the last 15 seconds.

Ms. JACKSON. I would have to agree with Secretary Adams. We are moving forward with rules that will be out this year and I think we hope that the Federal Government will come in behind us with rules that reflect the laboratory and experimentation that we are doing in the States.

Mr. BUTTERFIELD. Thank you. The Chair's time has expired. Thank you. Thank you very much.

At this time the Chair recognizes the gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. Before I start my time, I want to also recognize two alumni we have got hiding behind Ms. Jackson, Rick Kessler, who was formerly of the committee, and we have Dan Scopek, who used to be on Doug Ose's staff in California. So I think it is always good staff that helps good elected and appointed officials and we appreciate you all coming back.

Mr. BUTTERFIELD. Mr. Shimkus, I cannot help but to observe that we have a good, diverse panel today as compared to the panel yesterday when we had five men, all representing the automobile industry. All right. You have 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman. I have got a lot of things I want to talk about so I will try to go brief, and if you can keep your answers simple at first, and you may not know the answer, but mayor, is your State a net importer or exporter of power? Do you know? You have two nuclear plants so it is probably safe to say in your area you are a net exporter.

Mr. MCCRORY. I would assume exporter. I don't have those statistics with me but yes, and we work in both the Carolinas too, two different utilities.

Mr. SHIMKUS. Thank you.

Ms. Adams, California?

Ms. ADAMS. Net importer.

Mr. SHIMKUS. I knew that answer.

Ms. Jackson?

Ms. JACKSON. Net importer, about 25 percent.

Mr. SHIMKUS. I knew that answer.

Mr. Curry—oh, before you start, God put a rainbow in the sky to say there wouldn't be another flood that destroyed the whole world so I think you are safe from seeing any beachfront property any time soon.

Mr. CURRY. Well, we have lots of sand. We are ready to go.

Net exporter.

Mr. SHIMKUS. Thank you.

Ms. PARSLEY. In ERCOT we are self-sufficient. We do have some DC ties that we do move power through, but all the power in ERCOT is used in ERCOT. The out of ERCOT areas, I believe that they are net importers but——

Mr. SHIMKUS. And Texas is a little different because of ERCOT, the way that was set up.

How many of you think there is a benefit to lower energy prices?

Mr. McCRORY. One emphasis with energy prices which we always talk about residential energy prices but what is most important to us in the Southeast is energy prices for industry and manufacturing that is deserting our area, so that is very, very important for any kind of development.

Mr. SHIMKUS. Ms. Adams?

Ms. ADAMS. Yes, sir, although California does have some of the highest rates, people pay bills and for the most part Californians pay lower bills because we are highly energy-efficient. Our electricity——

Mr. SHIMKUS. So the question, do you support low price energy prices or high energy prices?

Ms. ADAMS. I support low but——

Mr. SHIMKUS. OK. Thank you.

Ms. Jackson?

Ms. JACKSON. Governor Corzine has made it clear that lowering energy prices is important for our economic——

Mr. SHIMKUS. Because you are one of the highest energy cost States in the Nation.

Ms. JACKSON. We do have high energy prices.

Mr. SHIMKUS. Thank you.

Mr. Curry?

Mr. CURRY. We believe in low energy prices, and the fact that we have low energy prices in New Mexico has helped create 80,000 jobs in——

Mr. SHIMKUS. And you are a net exporter.

Mr. CURRY. That is right.

Mr. SHIMKUS. And that is an important point.

Ms. Parsley?

Ms. PARSLEY. Yes, we do believe in low energy prices.

Mr. SHIMKUS. How many jobs in your States are based upon energy exploration or recovery? And again, the mayor, you may not know.

Ms. Adams?

Ms. ADAMS. I don't have that.

Mr. SHIMKUS. You don't have the information?

Ms. Jackson?

Ms. JACKSON. I think it would be minimal.

Mr. SHIMKUS. I would say limited for both of you but you might want to clarify that for the record in the future.

Mr. Curry, probably quite a few?

Mr. CURRY. Yes.

Ms. ADAMS. And obviously Texas quite a few.

Mr. SHIMKUS. When we address this greenhouse gas debate, I think it is safe to assume that natural gas could be a big advantage in trying to reduce the amount and keep electricity prices low. This was a map that I used before we eventually opened up some of the eastern Gulf Coast exploration but it is always significant that the west coast and the east coast, big red, off limits for natural gas exploration. Do you all know that?

Mr. Mayor, off your coast, do you know we can't explore for natural gas?

Mr. McCRORY. Yes.

Mr. SHIMKUS. Secretary Adams?

Ms. ADAMS. Correct.

Mr. SHIMKUS. Ms. Jackson?

Ms. JACKSON. Yes, we oppose that.

Mr. SHIMKUS. And of course, you are not on the coast yet there, Mr. Curry, so——

Ms. PARSLEY. Obviously we support it and we are a net exporter of natural gas in Texas.

Mr. SHIMKUS. And of course, you do have exploration off the coast of Texas.

If we want low cost, we have got to have supply too. If we want to have lower greenhouse gas emissions, we ought to move to some supply that would incentivize low-cost energy by using less emissions. But that is why a lot of us have problems with this debate from our friends on the other side of the aisle because they don't want to explore, they don't want to go after more natural gas, and natural gas is a major product and commodity for industry, for manufacturing, for agriculture and the like.

I want to end up with my last question to the mayor. Where is the high-level nuclear waste stored in those two nuclear power plants that are in your community?

Mr. MCCRORY. I don't have the statistics but much of it is currently temporarily stored on the location.

Mr. SHIMKUS. Whose responsibility is it to receive that high-level nuclear waste?

Mr. MCCRORY. The utilities work through the Federal Government and work through the nuclear agencies of the Federal Government but that is——

Mr. SHIMKUS. Do you think it would be safer to store that high-level nuclear waste under a mountain in the desert or next to your community?

Mr. MCCRORY. I personally think that we need to have a Federal policy of having one location, and I am an advocate of that. I think you are addressing the program which you addressed with natural gas and everything else. Even as mayors, as Sue knows, we have NIMBY issues where we are all rather hypocritical.

Mr. SHIMKUS. If we are going to increase in a cap-and-trade program down to 80 percent that some people want, we are going to have at a minimum 40 percent increase in cost and the NIMBY issue better stop because you are using our resources, our coal, our natural gas and you are not footing your part of the bill, and I would take that back to your State.

I yield back.

Mr. BUTTERFIELD. Thank you. Thank you very much.

At this time the Chair recognizes the distinguished gentleman from the State of Washington, Mr. Inslee, for 5 minutes.

Mr. INSLEE. Thank you. I would like to ask unanimous consent to put in the record a letter from Mayor Greg Nicholas concerning——

Mr. BUTTERFIELD. Without objection, the letter will be received into the record.

Mr. INSLEE. I want to elaborate on my thanking you for the local leadership States and cities have shown on this from an economic development perspective. A lot of people think of this as an environmental issue. I tend to think of it as an economic opportunity for the United States, and I just want to thank you for the successes that you are creating by creating economic opportunity. The fact that the local Governors and mayors are moving on this issue has created an investment opportunity for companies that are now developing technologies that are going to sell their products to China one of these days, and right now the RamGen Corporation, for instance, in Tacoma, Washington, has a compression technology that might reduce the cost of compressing CO^2 so we can make clean coal actually a market-based possibility in this country, and because of what you are doing, it is creating an investment climate so that they can move forward to develop clean coal technology that one of these days we are going to sell to China, because we need to sell our technology to China to create jobs here and to restrain their unrestrained CO^2 emissions in China.

We have tremendous investment in the Nano Solar Corporation in Palo Alto, California, that has developed a thin-celled solar cell, a phototaic cell, using the sigs system rather than a silicone-based system, but they have an investment climate that now allows that because you have moved forward to create this economic opportunity and one of these days we are going to sell that material, we are going to be the providers to China and India of solar. We have solar thermal. We just had a company bought from Austria now called Auster, it used to be called the Solar Power and Heating Company, we are going to sell that technology around the world. We have the A–123 Battery Company that is now in an investment climate where they can grow because of your local leadership and they have developed a lithium ion battery that is going to power the next generation of plug-in cars. It is going to get 150 miles a gallon and go 40 miles on zero carbon emissions. It can decrease CO^2 30 to 40 percent even using today's grid.

The point I want to make is, what you all are doing locally are growing the Nation's economy by allowing us to fulfill our destiny that I believe is America's destiny to sell clean energy technology to the world, and I believe that is a leadership destiny for this country that we ought to seize, and the effort that you are doing right now is helping us, so I just want to thank you for that. A lot of people think of you from the green perspective. I am thinking of the other kind of green here, and there is some other kind of green that we got to think about when we develop our global warming policy.

So with that, a question to Ms. Parsley. You talked about—and I am not sure I understood. You said an RPS could be a cap if it was not treated correctly, and I am not sure I follow what you said. You said we had to do something on RPS so that it didn't end up being a cap, it would actually be a floor.

Ms. PARSLEY. Right. Well, what I meant was, if you have a market with the buyers and sellers, you can buy as much as sold and you will produce, which is the law of supply of demand. With an integrated utility, you tend to have to say you would either buy 10 percent of whatever your output is and if the utility is doing that, then that tends to be a cap, in other words. It could be 10 percent of what they can actually purchase and what they can actually use because there are some system reliability limitations on wind because it is intermittent and some other issues surrounding it. So that is all I meant. I didn't mean that an RPS integrated utility was a bad thing at all. I just meant that if you have a market where you actually have people who can buy and sell it, it tends to act—it tends to increase.

Mr. INSLEE. I will give you another company, by the way. You mentioned intermittent nature of wind. There is a company called General Compression that has had a very significant round of financing and they have a system of compressing air, putting it in the ground, treating it as a battery that can run a turbine and it can potentially double revenues from wind turbines by making it a stable source of energy rather than intermittent, and it is that type of investment that your actions are driving and I think that is a technology some day that we want to sell to China as well.

Could I ask about the California experience? You may have talked about this. As I understand it, California has had essentially a stable electrical usage because of their efficiency work that they have done whereas the average American has gone on 50 percent in the last 15 or 20 years. I believe that is the statistic.

Ms. ADAMS. Yes, sir, I believe it is.

Mr. INSLEE. Could you talk about what you think is the most effective ways to accomplish that what I consider incredible achievement? You are still enjoying hot tubs out there. Your economy is doing pretty well but you have stabilized electrical use but everybody else's is going up by a factor of 50 percent.

Ms. ADAMS. Yes, that is true. Our electrical use per capita has remained nearly flat while the rest of the Nation's use has increased by 50 percent, and we do—we are very energy-efficient in California and we have through the rates paid for our rebate programs and other energy-efficiency programs such as installing dual-pane windows, installing solar, so we have a very active rebate program. My local utility, which is one of the most green in the State, provides free shade trees. We have some hot weather in Sacramento in the summer so——

Mr. BUTTERFIELD. The gentleman's time has expired.

Mr. INSLEE. Thank you.

Ms. ADAMS. You are welcome.

Mr. BUTTERFIELD. At this time the Chair recognizes the distinguished gentlelady from North Carolina, Mrs. Myrick.

Mrs. MYRICK. Thank you, Mr. Chairman, and thanks to all of you again for your testimony and your suggestions and things you are doing.

I wanted to ask my mayor a question and just let you elaborate. I know community-wise, we have got a lot going on with green building initiatives and the same with what you are doing in government. Could you just give us a little bit of a synopsis on how that is all working together and the difference it makes?

Mr. MCCRORY. Absolutely. I think this green building initiative, which I really commend Mayor Daley in Chicago for being one of the major leaders in this effort, is taking cities by storm and now we are working with the private sector, the architects, the designers of buildings. We have designed a museum and a theater recently as a green building in downtown Charlotte and now we are looking at putting those types of requirements in other buildings. Of course, you have to balance the costs and there are different levels of the green ratings but we think it has tremendous potential, especially with the impact of the heat index in major metropolitan areas.

Mrs. MYRICK. And of course, because we have low energy rates in the Southeast, I think a 40 percent increase would probably be very damaging to what happens with our economy in business and industry.

Mr. MCCRORY. Well, Sue, in your district, as you know, especially in the Gaston County area, we are trying to hang onto industry at this point in time, and as we try to compete with the Central America right across the border and even China, one of the major questions we get when we recruit industry or try to retain them is the energy prices. No doubt about it.

Mrs. MYRICK. One of the things that I think frustrates us a little bit in North Carolina relative to our energy situation is the fact that hydro is great and wind is great but we don't have the advantage of being able to use a lot of that, and so we have had to rely on other technologies and I wanted to ask Ms. Parsley, relative to Texas, I know you don't do coal but do you have any plans or how do you look at or have you considered clean coal technology in Texas? Is that an option for you?

Ms. PARSLEY. We have had two announced IGCC plants. They are test facilities. Texas has two of the four remaining sites for FutureGen and we really hope that FutureGen will site in Texas very much. But, yes, we are very supportive of that. It is still a burgeoning technology. It is very, very promising but it is still not quite available for commercial use. So that is something we are looking at very—we are very interested in that, yes.

Mrs. MYRICK. Mr. Curry, forgive my ignorance on this. Do you have any nuclear in New Mexico?

Mr. CURRY. Mr. Chairman, we do not have any nuclear in New Mexico but we do use Palo Verde nuclear plant, which is in Arizona, southern Arizona, and New Mexico is also in the process of permitting and has already been permitted by the NRC a uranium enrichment plant, which is in New Mexico, which will be used to supply fuel for nuclear facilities.

Mrs. MYRICK. Thank you. I will yield back my time.

Mr. BUTTERFIELD. Thank you. I believe that completes the first round of questioning. Would you like to go a second round?

Mr. SHIMKUS. Mr. Chairman, I had a question from the ranking member that——

Mr. BUTTERFIELD. The gentleman is recognized.

Mr. SHIMKUS. It is also one that I would want to ask also for public disclosure. I am glad Sue talked about coal. The basic question is, do you support the development of clean coal power plants in your State or adjacent States? And then I will just follow up with a little response.

Mayor? And I am talking about integrated, combined gas cycle which is the current technology.

Mr. MCCRORY. Yes, I do.

Mr. SHIMKUS. Ms. Adams?

Ms. ADAMS. I am not familiar with the technology on so-called clean coal but I know that sequestration is a big part of the solution and that is something that California is willing to invest in and look at.

Mr. SHIMKUS. And we had a big hearing on that a couple hearings ago, so Ms. Jackson?

Ms. JACKSON. Governor Corzine has made it clear that he thinks we must invest in coal technologies, not only IGCC but other sequestration technologies and we believe it is part of the mix.

Mr. SHIMKUS. Tell him thank you for me.

Mr. Curry?

Mr. CURRY. Yes, we do, and we are exploring the various types of credits that are available to companies that would be willing to do that exactly that in New Mexico.

Mr. SHIMKUS. And Ms. Parsley?

Ms. PARSLEY. Yes, we are.

Mr. SHIMKUS. And I hope that Texas is not successful. The two other FutureGen sites are in southern Illinois, which is where I am at. The States ought to be following this because it is near-zero-emission with carbon sequestration if you have the geological formations.

I do appreciate you coming, and with that, Mr. Chairman, I will yield back my time. Thank you.

Mr. BUTTERFIELD. The gentleman from Washington, Mr. Inslee.

Mr. INSLEE. Thank you, Mr. Curry, for writing a book about the economic opportunities associated with clean energy, and I have been really impressed with what has gone on in New Mexico because it has been historically a fossil fuel-producing State and it has been a major part of its economy but I have seen very significant changes under Governor Richardson's leadership and I just wanted to give you a chance to crow for a minute or two and tell us what you think has been most successful in those efforts. The question I guess I would ask you is, here we have a State that has been dependent on fossil fuels and has been an integral part of its economy and yet it is making this transition. How do you pull that off?

Mr. CURRY. Well, I will crow for the Governor, Mr. Chairman and Members. New Mexico gets most of its revenue stream from the oil and gas industry, a third of it and sometimes more than that, depending on the year, and that revenue stream helps to support our schools in New Mexico. The oil and gas industry is unique in New Mexico. When we have done our inventories on emissions that are greenhouse gases, the oil and gas industry is number two in New Mexico for those emissions. So it is the good and the bad, if you will, and what we have done is include them in the process and they understand how important it is to work on this problem and work on it with the State. In addition to that, we have brought industries in like Advent Solar that are going to bring a lot of jobs to New Mexico that are clean energy obviously. Tesla Electric Car Motor Company have just announced they are going to New Mexico. The Governor is determined and putting into green building, clean energy buildings that have low emissions within New Mexico.

And so we recognize the importance of fossil fuels in our State and they will be there for a long time but we are also determined to develop a strong renewable portfolio and these companies are helping us to do that, and it is a—without sounding too much like

I am promoting the guy that I work for, it really is due to his leadership in these areas because he is familiar with the way business works in New Mexico and how important these are to our sound economy but he has been able to bring in to the State the types of businesses that people see are profitable and sustainable as far as energy goes, and we are going to continue to do that. We have done that with tax credits and we have done that with tax cuts, and just like we were mentioning on the IGCC, we have got a proposal in front of our legislature right now to offer credits for coal companies that are willing to invest in the best available technology that is out there, and it is that sort of innovative thinking that is making that transition easy.

Mr. INSLEE. Sort of a working presumption I have is that we in Congress have been slow to this because we haven't recognized the public's recognition that they recognize this as an economic opportunity for us, and as far as I can tell, no politician in America has ever been beat arguing that Americans are smart enough to grow new technology, and my perception is, people understand that and that is why New Mexico has been successful at leadership. California, you have had good success and in New Jersey and other States. In New Mexico, has there been any sort of pushback from any quarter of the economy to try to grow these new companies in New Mexico?

Mr. CURRY. Mr. Chairman, Members, there have been certainly areas where people have resisted change, but when you get down and you sit down and have a conversation with them, just like this policy advisory committee that the Governor set up that included oil and gas industry, it included areas like the dairy industry, which is a producer of methane in our State, and New Mexico is one the largest dairy-producing States in the Nation, when you sit down and explain to folks if they can reduce waste in their business, whether it is greenhouse gases or other types of waste, as you reduce waste in business, your bottom line is going to improve over time. It will just simply do that by reducing waste and that is what the Governor has been able to do and that is what we continue to do.

Mr. INSLEE. Thank you.

And as I leave, I want to congratulate Texas for their movement with TXU coal sequestration technology. We hope that reaches fruition. Good luck. Thank you.

Mr. BUTTERFIELD. Thank you, Mr. Inslee.

The gentlelady from North Carolina? She has no questions. Thank you.

Well, I believe that completes the questions. Any other questions from any other Member?

Again, we want to thank all of you for coming. This has been most informative. This committee is in recess. Thank you.

[Whereupon, at 12:44 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

California
Environmental
Protection
Agency

CLIMATE CHANGE: STATE AND LOCAL PERSPECTIVES

Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce
March 15, 2007, 11:00 a.m. – Room 2123
Rayburn House Office Building

Statement of
Linda S. Adams, Agency Secretary

Chairman Boucher and Ranking Member Hastert,

On behalf of Governor Arnold Schwarzenegger, thank you for inviting me to testify before your committee today. I will describe California's process for developing our climate initiatives and explain the various programs we have in place, or are developing, to meet our climate goals.

First and foremost, I want to commend the Committee for holding this series of hearings on climate change. Global climate change is one of the most pressing environmental and economic issues of our time. If unaddressed, the consequences are frightening. Addressing climate change is no small task. But the first step is political leadership. That's why I am thankful that this Committee, and Congress as a whole, is addressing this issue in such a serious manner.

California's climate initiative began with a similar act of political leadership. In June 2005, Governor Schwarzenegger signed an Executive Order laying out his goals for addressing climate change. He committed California to reduce its greenhouse gas emissions to 2000 levels by 2010, to 1990 levels by 2020 and 80% below 1990 levels by 2050. He also established the Climate Action Team, consisting of cabinet level decision makers from the State's various agencies that have the authority to reduce greenhouse gases from their respective jurisdictions. As Secretary of the California Environmental Protection Agency, I chair the Climate Action Team.

In March 2006, the Climate Action Team released a report that laid out a blueprint for how California could reach the 2020 goal of reducing greenhouse gas emissions to 1990 levels. I would like to submit a copy of the executive summary of this report into the record. The report, known as the Climate Action Team Report, made a series of high-level recommendations including:

- Develop a multi-sector, market-based system to reduce greenhouse gas emissions in a cost-effective manner that both protects economic growth and encourages innovation;
- Mandate emissions reporting from the largest sectors;
- Conduct a macroeconomic analysis to inform policy makers on the most cost-effective measures to reduce greenhouse gas emissions;
- Accelerate regulatory measures, such as the renewable energy portfolio and energy efficiency standards;
- Educate the public to ensure that all citizens understand the significance of climate change and the steps they can take to mitigate it.

The report also laid out over 40 specific strategies that could be employed to reach the Governor's goal. The purpose of this exercise was not to commit California to each strategy. Instead, it was to demonstrate to the public and the Legislature that a combination of strategies could be implemented to achieve the Governor's ambitious goals.

As part of the Climate Action Team Report, a series of scenario analyses were included in the appendices to provide data on the potential impacts of climate change on California. These research documents were collected from some of California's most renowned climate scientists. In July 2006, these 17 scenario analyses were summarized in another important document, which I'd like to submit to the record. The document, "Our Changing Climate: Assessing the Risks to California," highlights the various effects of climate change on California, including:

- Potential loss of 70-90% of the Sierra-Nevada snow pack; which serves as our largest free water storage reservoir;
- Sea level rise affecting the livability and economy of coastal areas;
- Salt water intrusion into the California Bay-Delta, which supplies drinking water to 23 million Californians;
- Heat waves that worsen air pollution and jeopardize public health; and
- Significant damage to California's valuable agriculture industry.

This report demonstrated that there is a heavy toll to pay economically, environmentally and socially if we do not address climate change.

Assembly Bill 32 (Nuñez/Pavley) – The Global Warming Solutions Act of 2006

The California Legislature responded to the Governor's leadership by passing Assembly Bill 32, the Global Warming Solutions Act of 2006, to codify the Governor's 2020 goal of reducing our greenhouse gas emissions to 1990 levels. Assembly Bill 32 gave the California Air Resources Board responsibility to reduce greenhouse gas emissions from "significant sources." The bill was not overly prescriptive in terms of how the Air Resources Board would achieve the required emissions reductions; rather, it gave broad discretion to the Air Resources Board to implement the law. The bill allows market-based approaches and calls for emission reductions to begin in 2012. The legislation also required the Air Resources Board to set up two advisory committees, one to focus on environmental justice issues and one on economic and technological advancement.

The following is a summary of the timelines required by AB 32:

June 2006	Establish a list of Early Action Items;
January 2008	Establish the 1990 emissions baseline and develop rules for mandatory reporting;
January 2009	Develop a scoping plan, outlining a combination of market measures and regulations to reach 2020 target;
January 2010	Implement Early Action Items;
January 2011	Final approval of scoping plan proposals. A market could begin operation at this time;
January 2012	First enforceable caps come into place.

The Governor signed the bill in September 2006 and immediately focused on implementing the law. In October 2006, the Governor issued an Executive Order (S-20-06), calling on the Air Resources Board to develop a multi-sector, market-based compliance system that could permit trading between the European Union Trading System and the Northeast Regional Greenhouse Gas Initiative and others. It also called on me to create a Market Advisory Committee of national and international experts to advise the Air Resources Board, by June 2007, on the design of such a market-based compliance system. I announced the membership of the Market Advisory Committee in December 2006, and they have met twice already.

On a related note, I am very pleased to announce that on February 26, 2007, Governor Schwarzenegger joined with the Governors of Arizona, New Mexico, Oregon and Washington to sign an historic memorandum of understanding that commits these five western states to jointly develop a regional greenhouse gas emissions cap and a market-based trading system in our region.

Strategies to Meet California's Climate Goals

To return to 1990 emission levels by 2020, we estimate that California has to reduce emissions by 174 million metric tons per year. This goal requires a comprehensive strategy. First and foremost, California will continue to pursue the types of successful greenhouse gas emission reduction programs that the state has employed for years. These include:

- Automobile tailpipe regulations;
- Mandatory recycling goals;
- Building standards;
- Utility investment in energy efficiency;
- Appliance efficiency standards; and
- Renewable energy portfolio and other incentives.

California's energy programs alone have allowed the state's per capita electricity use to remain level for the last three decades, while electricity demand in the rest of the country has increased 50%.

In addition, California has initiated another series of strategies that will also contribute to our emissions reduction goal, such as:

- Million Solar Roofs Initiative, to achieve an additional 3000 megawatts of solar power by 2017;

- Greenhouse gas standard for power generation, to require long-term energy contracts have greenhouse gas emissions profiles that are at least as clean as California's existing portfolio;
- Low Carbon Fuel Standard, to reduce the carbon content of transportation fuels 10% by 2020;
- Hydroflorocarbons (HFC) reductions, to increase efficiency and minimize impacts of refrigeration units; and
- Forest preservation and management, to prevent wildfires, maximize carbon storage and minimize carbon release from harvesting.

California is pursuing a hybrid approach to reduce greenhouse gas emissions. Established regulatory programs and new regulatory strategies will be combined with market programs to meet our emissions reduction targets.

As Congress considers legislation to address global warming, I would recommend you consider several key principles.

- Set an overall cap on emissions.
- Design a system that allows all sectors of the economy to participate in the effort to reduce emissions. The lowest cost emission reduction strategies won't necessarily come from the industries that contribute the highest levels of emissions.
- Allow for market mechanisms that encourage every sector, indeed every citizen, to develop technologies or practices that reduce greenhouse gas emissions.

- Invest in scientific research. Additional science is needed both to determine potential mitigation strategies and to help the country plan for adapting to the changes that higher temperatures will bring.
- Promote public education to ensure that citizens understand the impacts of climate change and the steps to take to reduce their emissions.
- Remain open to new ideas and a new paradigm. Tackling climate change is a challenge of enormous scale. It requires us to reexamine systems for creating and delivering energy, mechanisms for transporting goods and services and beliefs on how we live our lives. It means we have to put old paradigms aside and refocus our intellectual energy on the task of reducing our carbon output while protecting and promoting economic growth.

Thank you, Mr. Chairman, for the opportunity to testify today. I look forward to answering any questions the Committee may have.

Written Testimony of
Ron Curry
Secretary of the New Mexico Environment Department

Before the

United States House Committee on Energy and Commerce
Subcommittee on Energy and Air Quality hearing on Climate Change: State and Local Perspectives
March 15, 2007

Introduction

Thank you Chairman Boucher, Representative Hastert, and members of the committee for inviting me to testify today. My name is Ron Curry and I am the Cabinet Secretary of the New Mexico Environment Department in the administration of Governor Bill Richardson. New Mexico's entire Executive branch is committed to addressing climate change and the Environment Department has been working closely with Governor Richardson's office to coordinate these activities.

There is overwhelming scientific consensus that our greenhouse gas emissions are leading to a warmer planet. Climate change threatens our snowpack and our water. The West simply doesn't have any water to waste – it is our lifeblood and the basis for our economy – that is Governor Richardson has taken an aggressive leadership position on this issue.

Global climate change is an extremely important issue to New Mexico. Temperatures in New Mexico increased an average 2 degrees Fahrenheit over the past century and are expected to continue to rise (1). Severe weather events that may be exacerbated by global climate change are wreaking havoc in our state. Drought conditions are predicted to be more severe due to global climate change. Snow pack in the mountains, which supplies most of our water, is diminishing and running off earlier in the spring. New Mexico's water supply will be more vulnerable if temperatures increase and drought conditions continue. If any of you have ever been to New Mexico you know how little water we have to begin with. New Mexicans are well-versed in water conservation but if drought conditions persist due to global climate change, the quality of life for our citizens will be adversely impacted. Our natural resources, such as Rocky Mountain trout will be negatively impacted. It is estimated that up to 75% of suitable trout habitat will be lost due to climate change. We expect the warming trend to result in more extreme weather events, to reduce biodiversity and to increase air pollution, which will adversely affect New Mexico's infrastructure and economy. We cannot afford to wait to address climate change.

With these kinds of impacts it is no wonder that a recent poll shows that 59 percent of New Mexico voters, regardless of party, feel that global warming is a serious problem. This same poll showed that the majority of voters also thought that more must be done to address global warming.

The United States needs to enact and implement a mandatory market-based greenhouse gas reduction program that covers all major economic sectors. In the absence of such a program, states like New Mexico are taking the lead in setting greenhouse gas reduction targets and finding ways to reduce emissions while maintaining economic growth.

Under the leadership of Governor Richardson, New Mexico is leading the way. Governor Richardson has signed tough greenhouse gas reduction targets including a 75% cut in New Mexico's emissions by 2050. We are also the first state in the nation to join the

Chicago Climate Exchange -- a market-based cap-and-trade system – where we joined industry leaders like Ford, DuPont and IBM.

Addressing climate change has not hindered our economy. On the contrary, it has created business opportunities. Governor Richardson put New Mexico in the lead on this issue in part because it is good for business. Our companies will develop the technologies needed to capture and reduce carbon dioxide emissions. This will make us a leader in the new carbon clean economy.

Governor Richardson's Climate Change Advisory Group

In the summer of 2005, Governor Bill Richardson issued an Executive Order setting greenhouse emissions reduction targets for New Mexico. The goals are to reduce greenhouse gas emissions to year 2000 levels by the year 2012, to reduce emissions 10 percent below 2000 levels by 2020 and 75 percent below 2000 levels by 2050. To meet the 2020 target, we will need to reduce emissions by about 26 million metric tons of CO2 equivalent from the business as usual scenario or about 37% percent. Governor Richardson also established the New Mexico Climate Change Advisory Group. After a year and a half of hard work, this diverse group of 40 stakeholders from industry, environmental groups and local and tribal governments developed 69 greenhouse gas emissions reduction strategies to achieve the Governor's emissions reduction targets. The group voted unanimously on 67 of the recommendations. When we implement all the group's reduction recommendations, we will exceed the Governor's emissions reduction targets. I would like to share with you a copy of the final report from this work group (*New Mexico Climate Change Advisory Group: Final Report December 2006*).

Although the Advisory Group report was drafted only recently, we are moving ahead quickly to implement many of the group's recommendations. In December 2006, Governor Richardson issued an Executive Order instructing state agencies to begin implementing a number of specific recommendations, including green building codes and agricultural sector emissions reductions. Just last week, Governor Richardson signed legislation increasing the state's renewable portfolio standard (RPS) from 10 percent renewable energy required in 2011 to 15 percent by 2015 and 20 percent in 2020. The Governor also signed a bill creating the Renewable Energy Transmission Authority, a quasi-governmental agency that will facilitate the transmission of renewable energy within the state and to markets outside New Mexico. We hope the New Mexico Legislature will have many more clean energy bills before the Governor soon, including tax incentives for the development and construction of advanced coal generating facilities, tax credits for "green building construction" and biodiesel targets and tax incentives.

Many of the recommendations from the group focus on New Mexico's energy economy. New Mexico historically has been a fossil energy state. We are third in the nation for onshore gas production and fifth in oil production. We export about half the electrical power generated in the state, which is mostly from coal fired power plants. However, if we are to effectively address climate change, we must change and diversify our energy economy to include energy production that is efficient, cost-effective and less polluting. In New Mexico, the number one source of greenhouse gas emissions is power production, while the number two source is production and processing in the oil and the gas sector. Those two industries combined account for nearly two-thirds of the greenhouse gas emissions produced in the state.

New Mexico Energy Policies

In 2004, Governor Bill Richardson declared New Mexico "the Clean Energy State." We have enacted incentives like the renewable energy production tax incentives and a solar tax credit to help achieve that vision.

We will continue to set aggressive energy policies that make New Mexico a leader in clean energy production as we continue to reduce greenhouse gas emissions. During the coming year, New Mexico will adopt the California Clean Car Standard and develop low greenhouse gas emitting building codes. In addition, we will evaluate mechanisms for reducing greenhouse gas emissions in our oil and gas industry and develop rules and procedures for sequestering carbon dioxide. We expect to have a mandatory GHG emission reporting program and a voluntary registry program in place by the end of the year. The development of a registry and reporting programs will assist the state in tracking progress towards meeting greenhouse gas emissions reduction goals. The registry and reporting program will allow industry to track its greenhouse gas emissions and certify reductions that could have a credit value in a future market-based program.

Collateral Benefits

New Mexico has already begun to see positive effects on our economy because we are implementing the Governor's targets in promoting and producing clean energy. We expect our energy economy to continue to grow. Some new clean energy businesses that have moved to the state include Advent Solar, a Tesla Motors electric car assembly plant, renewable fuels production facilities and about 500 megawatts of new wind generation constituting $500 million in capitol investment and an economic boon for New Mexico ranchers. We are currently positioning ourselves to be a leader in the area of solar thermal power generation with an increase in the RPS, production tax credits and tax incentives for the development of centralized solar power production.

Another benefit to implementing many of these strategies is energy independence. Promoting renewable fuels and energy efficiency is not only good for the environment and the economy, it is crucial for national security. Clean energy also reduces air pollution that protects New Mexico's air and maintains its beautiful vistas.

The Chicago Climate Exchange

Governor Richardson prescribes to market-based solutions for energy and environmental challenges. That approach can be low cost, flexible and effective if done properly. We signaled our commitment to market-based solutions in 2005 by becoming the first state to join the Chicago Climate Exchange. CCX is the nation's only active and legally binding greenhouse gas emissions reduction and trading system, a classic cap and trade program. CCX's membership includes more than 200 members representing a variety of industry leaders and other sectors, including Ford, DuPont, IBM, American Electric Power, Tampa Electric and the cities of Chicago and Oakland. The CCX trading program has been in effect since 2003 and the results are impressive. Total emissions from current members are approximately 270 million metric tons of CO2 equivalent per year that is about equal to emissions from 10 percent of the stationary sources in the U.S. In 2005, CCX members reduced greenhouse gas emissions by 30 million metric tons of CO2 equivalent or approximately the same amount of emissions from two huge, dirty coal-fired power plants.

Governor Richardson committed New Mexico state government, as a member of CCX, to reduce greenhouse gas emissions associated with its operations by 4 percent by 2006 and by an additional 2 percent by 2010. State government's primary sources of greenhouse gases are energy usage in office buildings and transportation. By joining CCX, New Mexico state government is setting an example it expects other states, local governments and businesses to follow.

The Western Regional Climate Action Initiative

In the absence of a strong national climate program, Governor Richardson is pushing for market-based solutions at the regional level. On February 26, 2007, he signed a memorandum of understanding with Governors Arnold Schwarzenegger of California, Janet Napolitano of Arizona, Chris Gregoire of Washington and Ted Kulongoski of Oregon creating the Western Regional Climate Action Initiative. The collaborative efforts of that group include setting a regional greenhouse gas emissions reduction goal, developing a regional market based program for achieving this goal, and participating in a multi-state greenhouse gas registry. The group will reach out to tribes, U.S. states, Mexican states and Canadian provinces to encourage them join the initiative. We expect the membership of the group to grow.

The Climate Registry

New Mexico is also working with other states to establish a common greenhouse gas emissions registry tool that all states can use. There are approximately 25 states and tribes involved in this effort through the Western Regional Air Partnership Program, the California Climate Action Registry, the Eastern Climate Registry and the Lake Michigan Air Directors Consortium. The purpose of The Climate Registry is to develop and implement a common repository for reporting greenhouse gas emissions and emissions reductions for member states and tribes. We expect to formally announce this new registry next month.

The importance of establishing this type of program cannot be overstated. Industry representatives in our state have told us many times that they want baseline protection that will allow them to register reductions if they reduce emissions now. That safeguard will protect participating industries from experiencing economic disadvantages compared to higher emitting competitors in a future cap and trade program.

Recommendations to Congress
New Mexico understands that we cannot stop the global warming trend on our own. Our greenhouse gas emissions account for only about 1.2 percent of the national total. But we feel like we have a moral obligation to do our part.

New Mexico intends to continue to show other states, regions and our nation how greenhouse gases can be reduced in an economically responsible manner. The federal government would benefit from implementing programs similar to New Mexico's to create reductions in greenhouse gas emissions to levels that will avoid the most severe effects of global climate change. Only when the federal government shows leadership on global climate change can we expect other nations to follow.

The United States needs a strong mandatory national program to achieve significant greenhouse gas emission reductions. Our country also must re-engage internationally to achieve greenhouse gas reductions around the world.

I encourage Congress to learn from the states, who are acting on behalf of the welfare of their citizens in taking a strong stance on global warming initiatives. Congress should develop similar national programs to reduce greenhouse gas emissions. Over the last 30 years of the Clean Air Act, the states have proven themselves as the laboratory for innovation and air pollution control. When the federal government has been unable or unwilling to act, the states have stepped in to protect air quality. We have seen this with air toxics, low emission vehicles, mercury and now climate change. New Mexico is one of a few states testifying before you today, but many other states are exploring and implementing greenhouse gas emissions reduction programs. I would like to share with you a document summarizing the programs to combat climate change in the other states. (*Chart of State Greenhouse Gas Actions*). We think it's important that federal legislation build upon these efforts and set a strong national reduction target so that all of us are contributing to solving this enormous challenge, but legislation should also contain flexibility for states and localities to take more aggressive action on global warming, to take account of their differing economic and environmental needs.

Congress should also provide EPA with adequate funding and authorization to develop a national greenhouse gas reporting and registry program that builds upon the work of current programs and efforts around the country including the California Climate Action Registry and the newly formed Climate Registry. Any federal program must assure baseline protection for companies who have registered emission reductions under state programs.

Nearly half of all greenhouse gas emissions are the result of energy used to operate and maintain buildings. To affectively address this issue, Congress should develop programs to support green buildings and improve energy efficiency in this sector.

Congress must improve CAFÉ standards. Nation wide, transportation is the second largest source of greenhouse gas emissions. The nation cannot adequately curb greenhouse gas emissions without improving CAFÉ standards.

Most importantly, as aptly stated in the 2005 *Sense of the Senate on Climate Change*, "Congress should enact a comprehensive and effective national program on mandatory, market-based limits on emissions of greenhouse gases that slow, stop, and reverse the growth of such emissions." The emission caps in such a program should result in reductions at least as fast as the targets set by Governor Richardson – 2000 levels by 2012, 10 percent below that by 2020 and 75 percent below that by 2050. Several proposals before Congress would not achieve reductions on that scale and should be rejected. This national program should be premised upon the work already underway in the states and should not undermine the work being implemented at the state level to reduce greenhouse gas emissions. We must retain the option of going further than federal rules to address unique circumstances in our state.

Thank you for inviting me here today to testify on this important issue. I look forward to your questions.

(1)Analysis conducted with data from the National Oceanic and Atmospheric Administration by the Rocky Mountain Climate Change Organization.

Attachments

New Mexico Climate Change Advisory Group Report
Chart of State Greenhouse Gas Actions

Testimony of
Lisa P. Jackson, Commissioner
New Jersey Department of Environmental Protection

Thank you Mr. Chairman and members of the committee for inviting me to testify. I want to commend all the committee members on both sides of the aisle for holding this hearing and taking the steps necessary to begin tackling the issue of climate change. Now is the time to initiate the steps necessary to preserve our planet for our children and grandchildren by adopting aggressive requirements for the reduction of greenhouse gas emissions.

New Jersey is especially vulnerable to the environmental, economic, and public safety effects of climate change, including the effect of sea level rise on the State's densely developed coastline from increased incidence and severity of flooding and storms. Likewise, my State's economy is especially vulnerable to the effects of climate change with our active ports, a vibrant agricultural sector and a significant coastal-based tourism industry.

In response to this challenge, Governor Corzine recently issued an Executive Order that sets statewide targets for stabilizing New Jersey's greenhouse gas emissions at 1990 levels by 2020. Furthermore, his order looks long term by setting a target for the State to reduce greenhouse gas emissions to 80% below 2006 levels by 2050.

To reach this goal, the Governor has directed various state agencies, in consultation with stakeholders, to evaluate methods to meet and exceed the 2020 target reductions. Within the next six months, I will make specific recommendations to meet the targets while taking into account the economic benefits and costs of implementing these recommendations. This evaluation will be done in conjunction with the state's Energy Master Plan, which the Governor has directed to be completed by this October, that incorporates the 2020 greenhouse gas reduction target.

Under Governor Corzine's Executive Order, my agency will report progress towards the reduction targets every two years and will recommend additional actions that may be necessary to reach the targets.

The Governor also directed the Director of Energy Savings in the Department of the Treasury to develop targets and implementation strategies for reducing energy use by state facilities and vehicle fleets.

New Jersey is not the only state that has recognized not only the essential need to reduce greenhouse gas emissions but also the economic opportunities that are presented by this effort. Unfortunately, thus far the states have had to go it alone. It was only just recently that, despite years of mounting scientific evidence, the Administration grudgingly acknowledged that climate change was real and that human activity played a significant role.

In the vacuum of federal leadership in addressing climate change, the Regional Greenhouse Gas Initiative – or RGGI – was formed. RGGI, a cooperative effort of the Northeastern and Mid-Atlantic states of New Jersey, Maine, Vermont, New Hampshire, New York, Massachusetts, Connecticut, Rhode Island, Delaware and Maryland is leading the charge on working to reduce carbon dioxide emissions from the electric power sector.

I note that a number of the RGGI states are represented on this subcommittee. I would like to thank each and every one of you for the hard work your States are putting forward in this important effort.

Each day, additional states make commitments to fight the battle against global warming, in large part because of the lack of leadership at the federal level. California, Arizona, New Mexico, Washington, and Illinois have all set aggressive greenhouse gas emissions reduction targets for their states. Governors of five western states have formed the Western Regional Climate Action Initiative.

I invite those of you who represent states that have not yet joined us in these initiatives to step forward.

To address this important environmental issue, the RGGI participating states are developing a regional strategy for controlling emissions of greenhouse gases, which are not bound by state or national borders. Central to this initiative is the implementation of a multi-state cap-and-trade program with a market-based emissions trading system. This is the first-ever cap-and-trade program addressing CO_2 in the United States. The proposed program will require electric power generators in participating states to reduce carbon dioxide emissions.

As a member of RGGI, New Jersey will adopt rules to implement our portion of the regional cap-and-trade program to address carbon dioxide pollution from power plants that generate electricity in New Jersey. RGGI will cap regional power sector CO_2 emissions in ten Northeast and Mid-Atlantic states at approximately current levels through 2014 and reduce emissions to 10% below this level by 2019, a reduction of 16% relative to projected 2020 business-as-usual emissions.

We also intend to auction up to 100% of New Jersey's CO_2 allowances under RGGI to support consumer benefits. Revenue from the auction of allowances will be used to provide support for energy efficiency and clean energy technologies that will reduce the cost of meeting the RGGI CO_2 cap, in turn reducing the impact to electricity ratepayers. We are presently working with the New Jersey Legislature to dedicate up to 100% of these funds to promote energy efficiency, renewable energy, and other projects that benefit electricity users.

My main purpose today has been to provide you with information on the direction New Jersey, both solely and in concert with other states, is moving to do its part to reduce greenhouse gas emissions. However, I would be remiss if I did not take this opportunity to strongly urge the Congress to also do its part in developing a strong federal initiative.

While states are currently taking the lead, we need federal action to set minimum requirements that allow businesses to make long-term capital planning decisions. State and regional efforts will provide many useful lessons to inform the design of federal legislation. However, absent unifying federal policy that sets minimum requirements, multiple state efforts will create an environment of uncertainty for business.

Perhaps the most crippling barrier we face is the false idea that we cannot reduce greenhouse gas emissions without hurting the economy. This has been a constant mantra of the current administration in Washington, but this is patently false. If nothing else, you can rest assured that Governor Corzine, as a former CEO, is not going to pursue a path that would decrease our economic competitiveness. On the contrary, the goals and the long-term vision laid out in his Executive Order will provide the foundation for sustainable economic growth, putting New Jersey in a stronger economic position in the future.

While climate change presents acute risks for New Jersey, addressing this challenge also provides great opportunity. Reducing greenhouse gas emissions will support New Jersey's economic growth strategy by creating economic drivers that build markets for energy efficiency and clean energy technologies, and spur technical innovation and job growth.

Moving aggressively now to reduce greenhouse gas emissions will also place New Jersey's economy at a competitive advantage in responding to the requirements of an anticipated federal program to reduce greenhouse gas emissions.

Today I ask you to redouble your efforts to pass meaningful federal climate change legislation. The long-term wellbeing of New Jersey – and of every state in the union – ultimately depends on a strong federal program to reduce greenhouse gas emissions, as well as a reengagement by the federal government in international negotiations to further develop a global response to climate change. It is imperative for Congress to act, but it is also imperative for Congress to act to create meaningful, not symbolic, federal laws. Weak or marginal federal laws will only turn back the progress states have made.

I have attached a list of principles for federal action on climate change that draws from the approach Governor Corzine's administration has taken to designing emissions reduction policies and measures, both at the State level and through regional efforts, such as the Regional Greenhouse Gas Initiative.

I hope that you will find these principles useful as you consider the multitude of federal climate change bills that have recently been introduced.

At a minimum, federal climate change legislation should establish strong science-based emissions reduction limits. An emissions reduction on the order of 80% relative to current levels by 2050 will likely be needed to avoid dangerous interference with the climate system.

Federal legislation should also acknowledge that a portfolio approach is required, and that implementing a federal cap-and-trade program alone would be ill advised and insufficient. State climate change action plans have evaluated a multitude of policy measures for reducing greenhouse gas emissions. This portfolio approach should inform the development of federal legislation.

Additionally, more emphasis needs to be placed on energy efficiency initiatives, such as new appliance standards and enhanced building codes. I urge you to increase the Corporate Average Fuel Economy ("CAFE") standards. In New Jersey, nearly 50% of our carbon dioxide emissions are from the transportation sector. Increased fuel mileage standards at the federal level will greatly assist in our efforts to meet our climate change goals.

States' actions are the foundation for future federal programs and, as such, the federal government needs to recognize the critical resources states bring to bear on this issue. Federal monies need to be made available now to states that are leading in the development of policies on this issue, acknowledging the critical role that those states' planning and actions have on development of federal programs.

Federal legislation should acknowledge an ongoing role for states in the design and implementation of a federal emissions reduction program. Congress can learn a great deal by reviewing the work already done at the state level to evaluate and develop greenhouse gas emissions reduction policies. It should be noted that the states – and New Jersey in particular – have often been where new federal legislative initiatives to protect the public have started. Superfund, Right-to-Know, wetlands protection are all examples of where leadership at the state level has eventually led to strong federal protections. Climate change will be yet another example where the federal government has learned valuable lessons from state experiences. I urge you to closely monitor the work of the states, in particular RGGI, which is the only effort in the U.S. to date to actually articulate the detailed design of a CO_2 cap-and-trade program for the power sector.

Finally, I want to underline that the states are currently the leaders in addressing climate change, and will likely continue to push the envelope after federal legislation is enacted. Federal legislation should facilitate the role of the states as policy innovators by explicitly preventing federal preemption of state programs that go beyond federal minimum requirements, as well as preventing preemption of state programs outside the scope of federal initiatives.

New Jersey is a great example of this innovation. While the targets Governor Corzine has set for New Jersey are aggressive, we believe they can be met, and we intend to meet them by building on actions already underway to reduce greenhouse gas emissions.

Thank you for this opportunity to testify on this important issue. I am available to answer any questions you may have.

ATTACHMENT

Principles for Effective, Scientifically Sound Federal Climate Change Legislation

Emissions Reduction Requirement

- Incorporate a science-based, long-term emissions reduction requirement with a goal of avoiding dangerous anthropogenic interference with the climate system. Based on current state of the science, legislation should stabilize and begin to reduce greenhouse gas emissions within the next ten years, and achieve emissions reduction of 80% relative to current levels by 2050.

- Legislation should institutionalize a periodic review of climate science and allow for a revision of emissions reduction requirements based on the current state of the science.

Policy Approach

- Pursue a portfolio approach to reducing emissions, acknowledging that a cap-and-trade program may be appropriate for some sectors (e.g., large stationary sources), but that other policies may be more appropriate for addressing emissions from other sectors. States have a unique capacity to implement a portfolio of policies and measures that address energy production, energy efficiency, transportation, waste management, agriculture, and other economic sectors.

Design Process

- Learn from and build upon the policy work already completed or underway at the state level when crafting federal emission reductions programs (e.g., RGGI, California AB 32, state climate action planning processes).

Implementation Process (Role for States)

- Institutionalize a role for states in designing and implementing statutorily mandated federal emissions reduction regulations under the auspices of a federal portfolio approach. This would provide a role for states to help articulate the details of federal emissions reduction programs, building upon the analyses being done by leadership states through their climate action planning processes and regional emissions reduction programs such as RGGI.

- Explicitly prevent federal preemption of state programs that go beyond federal minimum requirements, as well as preemption of state programs outside the scope of federal initiatives.

Cap-and-Trade Program Design

- Avoid the use of safety valves or price caps.

- Allocate allowances in a manner that maximizes consumer benefits and market transformation impacts. In the electric power sector, allowances should be auctioned, in recognition that large portions of the U.S. have instituted competitive wholesale electricity markets. The monies from the auctions should be used for measures that both reduce our carbon footprint and enhance our competitiveness, such as energy efficiency projects.

- Signal that new conventional coal-fired power plants constructed from this day forward will not be grandfathered under a federal cap-and-trade system, and will need to purchase allowances on the open market.

- Limit the use of emissions offsets, to ensure that a majority of emissions reductions are achieved from the capped sector or sectors. Emissions offsets should be incorporated as a flexibility mechanism that is designed to be supplemental to on-system emissions reductions.

- Design robust requirements to ensure that emissions offsets are of high quality and represent incremental emissions reductions beyond business-as-usual reductions. Should include strong additionality criteria to avoid crediting of "anyway tons" and provide a reasonable assurance that the cap-and-trade program is what is actually driving emission reductions achieved through offsets. Quantification and verification protocols should be rigorous and detailed, and apply conservative assumptions when appropriate.

CHARLOTTE.

Testimony

Of

The Honorable Patrick L. McCrory
Mayor,
City of Charlotte, North Carolina

Before the

U.S. House of Representatives Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce.

March 15, 2007

Chairman Boucher and Members of the Subcommittee on Energy and Air Quality, I am pleased to be invited to speak before you this morning.

I am the Mayor of Charlotte, North Carolina, which is the 20th largest city in the country and is the headquarters city for eight Fortune 500 companies. I also serve as the Chairman of the U.S. Conference of Mayors Environment Committee

This past year, like so many baby boomers who have lost their parents, my brother, sisters, and I had the difficult job of cleaning out my parent's house, due to my mother's passing. While cleaning out a dresser drawer, I came upon a 1962 political brochure from my father's city council campaign in Worthington, Ohio. One quote in the brochure sticks with me today and I thought it was appropriate for your deliberations. It said, "We must walk the fine line between the growth and the preservation of values and the environment which brought many of us here. In this way, we can be certain that new families and desirable industry will continue to be attracted to Worthington."

For city Government officials during the last 45 years, whether in Worthington, Ohio or Charlotte, North Carolina, the goal of balance remains. As Mayor for the last twelve years of one of the most dynamic and fastest growing cities in the nation, I often return to my dad's words to initiate long-term economic and environmental policy. In doing so, I like many Mayors, have had to step on the toes of the fringe elements of both the left and the right who believe you cannot have both economic and environmental policy working in tandem.

Many on my political right criticize our efforts to implement mass transit, long-term land-use planning, and green building initiatives. To those on my right, I say they are wrong.

On the other hand, many on my political left fight to stop new zoning for manufacturing, Brownfield development liability waivers, and they won't implement, much less discuss, an energy policy that includes clean coal technology and nuclear energy. To those on my left, I say they are also wrong.

Eighty percent of Americans now live in cities. By 2050, that number will increase to 90 percent.[1] Cities worldwide presently account for 78% of all greenhouse gas emissions because that is where the people and cars are.[2] Between 2000 and 2015, the Charlotte-Mecklenburg population is estimated to increase by 44%, while Vehicles Miles Traveled in Charlotte-Mecklenburg is estimated to increase 80%.[3]

Like cities across the nation, Charlotte has been on the forefront of leading the environmental change across this country. Our efforts have been deliberate and have focused on all aspects of the environment including air, water, and land.

A few highlights of Charlotte's environmental efforts include:

- A residential tree ordinance that requires developers to save 10% of the tree canopy in any residential development project
- Enhancing our stream buffer guidelines to reduce water runoff pollution

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[1] Mayors for Climate Change website: www.coolmayors.com
[2] US Conference of Mayors website: www.usmayors.org
[3] Charlotte Department of Transportation and NC State Data Center

- A sidewalk policy that requires residential and industrial areas to have sidewalks
- Increased bike lanes in city road projects to offer a travel alternative
- An expansion of the City's hybrid bus system and development of mass transit, to encourage people to get out of their cars and reduce emissions

As a designated non-attainment area, we have worked with the Environmental Protection Agency to create a regional approach to addressing air quality issues. Mayors and County Board Chairs have been working together in a unique, bi-state effort since 2000 to initiate common land-use and transit measures at the regional level to improve our overall air quality.

Further, another regional partnership between business and government, called *Clean Air Works!* has been implemented to work with employers to give employees more tools to take more control of the manner in which they commute to work. One of our largest employers now provides employees with a $50 a month reimbursement to city bus or vanpool riders and another local employer introduced a new program that provides a $3,000 reimbursement to employees purchasing a new hybrid vehicle. This is on top of the hybrid vehicle tax credit provided by the IRS.

The State of North Carolina has also been an active partner in air quality and environmental initiatives, including the historic Clean Smokestacks legislation of 2002. This act required major reductions in S02 and NOX emissions from North Carolina's 14 coal-fired power plants and it had the input and support of the State's major utility companies.

Efforts like the Clean Smokestacks legislation and the efforts we are taking at the local level show that business and government can work together and achieve significant results. The desire is to now see the same from our federal leaders.

My desire today is to impress upon you that reliable, reasonably priced, and environmentally sound energy helps to fuel our cities economy.

As I stated earlier, Charlotte is a high-growth city with a strong economy. We continue to have strong job growth due in part to companies wanting to locate or expand their operations in North Carolina because of lower than average electricity prices, a skilled workforce, and a great quality of life. This is especially important since our region has been hurt by textile jobs moving out of the country.

North Carolina currently ranks 6th among 31 states with nuclear capacity and this is the key reason why we have lower than average electricity prices.

Nuclear energy is currently our nation's largest source of emissions-free electricity and must be a part of our nation's plan to address climate change.[4] In fact, only 20 miles outside of Charlotte there are four nuclear reactors in two separate areas. The Charlotte-region supports and understands the safety and necessity of this clean energy. In fact, multi-million dollar homes have been built within eyesight of these plants.

Another potential source of emissions-free electricity is renewable energy. In North Carolina, our generation mix currently includes 4.4% of hydroelectric power and 1.5% of other types of renewable power.[5] Costs per kilowatt for solar and wind technologies are improving, however, electricity from solar and wind requires some duplication of generating capacity due to their intermittent nature.[6]

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[4] Nuclear Energy Institute website: www.nei.org

[5] Energy Information Administration, State Electricity Profiles 2004

How the federal government seeks to address global climate change through policy and programs could greatly impact economic competitiveness.

North Carolinians still spend a substantial amount on energy. In 2000, they spent over $19.3 billion, or 7% of the Gross State Product.

It is imperative that federal environmental policy is balanced and comprehensive – and is structured in a manner that will protect American citizens and businesses from sudden price shocks for energy and other goods. It must also continue policies that financially support mass transit and other efforts to provide our citizens a choice over the automobile.

Mayors across the country realize there is no quick fix to solve our environmental challenges. We have proven that leadership at the local and grassroots level can have a major positive impact on global and national pollution.

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[6] World Nuclear Association: Renewable Energy and Electricity

I do want to highlight that climate protection has been on the U.S. Mayor's radar dating back to 2005 when I chaired the passage of the U.S. Mayors Climate Protection Agreement through the Environment Committee and onto full adoption by the Conference. However, instead of spending time on debating the concept of global warming and climate change, as Mayor, I focus on the merits of clean air, clean water, and open space. In cities across the country, soccer moms and NASCAR dads clearly understand this environmental message, because it directly impacts their children today.

As a result of the growing emphasis on environmental issues, the Conference of Mayors has developed the 10-point plan for a Strong America and has made the Energy and Environmental Block Grant proposal the first effort in our 10-point plan. I hope you will read more about the Conference's Energy and Environmental Block Grant proposal, as it is modeled after the successful Community Development Block Grant program. This new block grant proposal gets at the heart of having a comprehensive environmental effort, whereby the federal government would partner with local governments, through funding grants, to implement community strategies to reduce carbon emissions and increase community energy efficiency. In addition to supporting the Energy and Environmental Block Grant proposal, I also ask that this subcommittee evaluate how EPA guidelines can reward cities with air credits for implementing sound land-use and environmental policies.

In closing, I hope you too will also keep the words of my father in your minds as you work to address environmental issues and seek to find that "fine line between the growth and the preservation of values and the environment." I also ask that you continue to call upon local and state leaders to develop a common sense approach to environmental and economic policy, as well as energy and transportation policies.

I am confident that Mayors will continue to work in the best interest of our communities by creating jobs for our citizens, while protecting our environment for future generations.

It was an honor to speak before you today and I appreciate the time you are taking to discuss this important issue.

Testimony of Julie Caruthers Parsley
Commissioner of the Public Utility Commission of Texas
Before the U.S. House of Representatives
Subcommittee on Energy and Air Quality, Committee on Energy and Commerce
March 15, 2007

The Public Utility Commission of Texas (PUCT) oversees the electric industry in the Electric Reliability Council of Texas, which covers approximately 85% of the State's electric load and is located solely within the State of Texas. The remaining portions of Texas are located in either the Eastern or Western Interconnections. Texas has experienced tremendous growth in renewable generation since the wholesale market opened in 1995, adding over 3000 MWs of wind generation to date, with another 4000 MWs under construction or announced. Texas surpassed California as the U.S. leader for renewable energy and has the world's largest windfarm. In 2005, Texas increased its Renewable Portfolio Standard (RPS) from 2880 MWs of installed renewable generation to 5,880 MWs by 2015, with a target of 10,000 MWs by 2025.

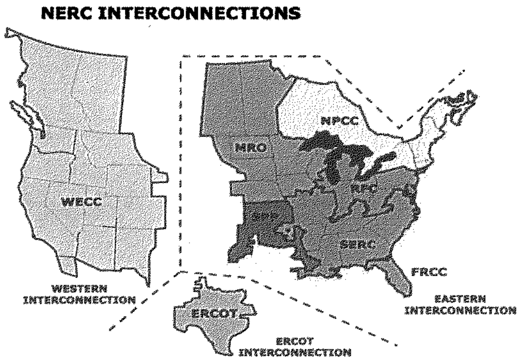
Three essential factors have facilitated the success of renewable generation in Texas: robust markets for renewable energy; significant transmission investment; and positive economic incentives. First, a commitment by Texas leadership in competitive wholesale and retail markets has facilitated willing buyers and sellers to expand the growth of renewable resources. Second, utilities have made significant commitments to improve the transmission infrastructure, including over $2.2 Billion from 1999 to 2005 with an additional $3.1 Billion expected from 2006 to 2012. This level of transmission investment is due, in large part, to the mandate from the State Legislature that wholesale transmission services are priced based on the postage stamp method and costs are socialized across the State. In addition, the Texas Legislature directed the PUCT to designate competitive renewable energy zones and develop a plan to construct transmission capacity necessary to deliver renewable energy to consumers. Finally, the federal Production Tax Credit (PTC) and Texas Renewable Energy Credits (REC) trading program offer positive economic incentives to help make the costs of wind energy competitive, especially during times of high natural gas prices.

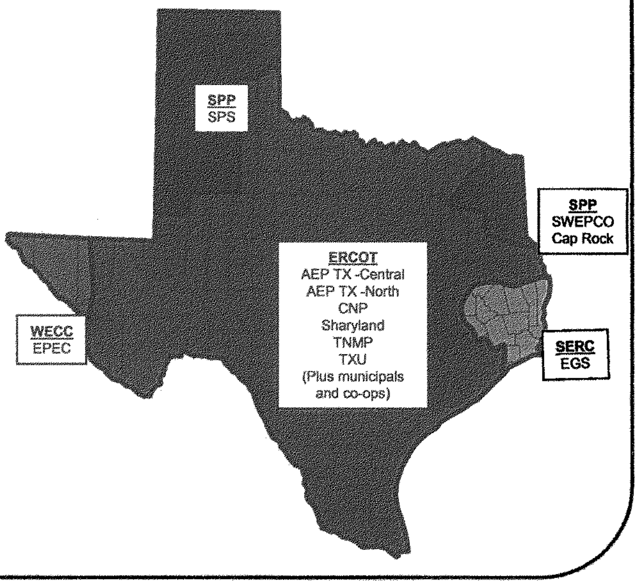
In summary, I think the most critical factor for the success of renewable energy is the ability to fund, site, and build transmission to move the power to the load. One solution would be consideration of renewable transmission corridors with socialized costs, but any national policy should allow for regional flexibility.

Renewable Energy:
A Texas Success Story

Julie Caruthers Parsley, Commissioner
Public Utility Commission of Texas
Testimony Before U.S. House of Representatives
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
March 15, 2007

National Electricity Interconnections





ERCOT - Electric Reliability Council of Texas
SERC - Southeastern Electric Reliability Council
SPP - Southwest Power Pool
WECC - Western Electricity Coordinating Council

Renewable Generation in Texas

- Over 3000 MWs of wind generation installed in the State since 1995, with another 887 MWs under construction and an additional 3,125 MWs announced
    - Most capacity in ERCOT, but 122 MWs installed and 161 MWs under construction in the Southwest Power Pool
- Texas surpassed California last year as U.S. leader for renewable energy
- Texas has the world's largest wind farm (735 MWs)
- In 2005, Texas increased its Renewable Portfolio Standard (RPS) from 2880 MWs of installed renewable generation to 5,880 MWs by 2015, with a target of 10,000 MWs by 2025

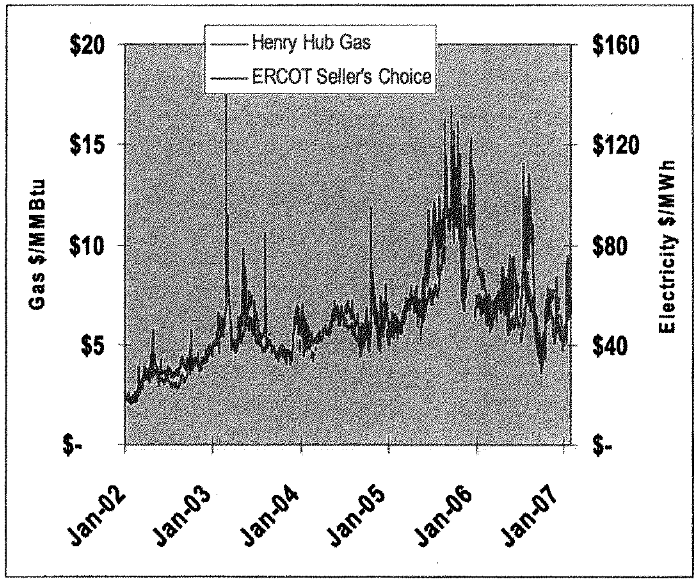
Why Does Texas Have Such a Successful Renewable Program?

- A commitment by Texas leadership to renewable energy, facilitated by three factors essential to its success:
  1. Robust markets for renewable energy
  2. Significant transmission investment
  3. Positive economic incentives

1. Robust Markets for Renewable Energy

- Competitive wholesale and retail markets that fully support renewable generation—willing buyers and sellers of renewable power which can continue to increase, rather than integrated utilities with a mandate to utilize renewables up to a certain level, which serves to cap growth
- Earlier this week a coalition of environmental and renewable energy groups sent a letter to FERC Chairman Kelliher arguing that competitive electric markets are necessary for successful renewables and demand response, and stated that approximately 73% of installed wind capacity is located in regions with well-structured regional wholesale electricity markets

But what about high residential retail electricity prices in ERCOT?



- Natural gas is the marginal generation in ERCOT
  - Approximately 72% of electric generation in ERCOT is natural gas
- Energy prices in ERCOT track natural gas prices, which are volatile and have increased since market opening in 2002
  - Currently 175% increase
  - 500% increase at peak in 2005
- In contrast, other areas of Texas and US in which coal is the predominant fuel have lower electricity prices

2. Significant Transmission Investment in ERCOT

- Over $2.2 B in transmission infrastructure investment in ERCOT from 1999 - 2005 (over 4,100 circuit miles)
  - Additional $3.1 B expected from 2006 - 2012 (over 3,400 additional circuit miles)
- Texas law uses "postage stamp" method to price wholesale transmission services in ERCOT—*i.e.*, all costs are socialized across the region (PURA §35.004)
  - Until very recently in Southwest Power Pool, transmission upgrades have required participant funding. Now base upgrades have a cost-allocation methodology
- In 2005, Texas Legislature directed the PUCT to designate competitive renewable energy zones (CREZs) and develop a plan to construct transmission capacity necessary to deliver renewable energy (PURA §39.904)

3. Positive Economic Incentives

- Federal Production Tax Credit
- Texas Renewable Energy Credits (REC) Trading Program (P.U.C. Subst. R. 25.173)
  - REC = 1MWh of renewable energy
  - Tradable and separate from the energy
  - Competitive retailers required to retire RECs as a percentage of retail sales to support the renewable capacity target

Recommendations

- Ability to fund, site, and build transmission is critical to success of any RPS or REC program—if power can't move to the load then generation won't site regardless of the economic incentives
- Consider renewable transmission corridors with socialized costs
- Allow for regional flexibility

ONE HUNDRED TENTH CONGRESS
U.S. House of Representatives
Committee on Energy and Commerce
Washington, DC 20515–6115

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MARSHA BLACKBURN, TENNESSEE

June 5, 2007

The Honorable Julie Caruthers Parsley
Commissioner
Public Utility Commission of Texas
1701 North Congress Avenue
Austin, TX 78701

Dear Commissioner Parsley:

Thank you for appearing before the Subcommittee on Energy and Air Quality on Thursday, March 15, 2007, at the hearing entitled "Climate Change: State and Local Perspectives." We appreciate the time and effort you gave as a witness before the subcommittee.

Under the Rules of the Committee on Energy and Commerce, the hearing record remains open to permit Members to submit additional questions to the witnesses. Attached are questions directed to you from certain Members of the Committee. In preparing your answers to these questions, please address your response to the Member who has submitted the questions and include the text of the Member's question along with your response.

To facilitate the printing of the hearing record, your responses to these questions should be received no later than the close of business on June 13, 2007. Your written responses should be delivered to 2125 Rayburn House Office Building and faxed to (202) 225-2899 to the attention of Rachel Bleshman. An electronic version of your response should also be sent by e-mail to Ms. Bleshman at rachel.bleshman@mail.house.gov. Please send your response in a single Word or WordPerfect formatted document.

Thank you for your prompt attention to this request. If you need additional information or have other questions, please contact Rachel Bleshman at (202) 225-2927.

Sincerely,

JOHN D. DINGELL
CHAIRMAN

Attachment

cc: The Honorable Joe Barton, Ranking Member
Committee on Energy and Commerce

The Honorable Rick Boucher, Chairman
Subcommittee on Energy and Air Quality

The Honorable J. Dennis Hastert, Ranking Member
Subcommittee on Energy and Air Quality

The Honorable Michael C. Burgess
Subcommittee on Energy and Air Quality

PUBLIC UTILITY COMMISSION OF TEXAS

Julie Caruthers Parsley
Commissioner

(512) 936-7005
julie.parsley@puc.state.tx.us

June 18, 2007

The Honorable John D. Dingell, Chairman
U.S. House of Representatives
Committee on Energy and Commerce
Washington, DC 20515-6115

Dear Chairman Dingell:

I am in receipt of your letter dated June 5, 2007 requesting a response to questions directed to me from certain Members of the Committee. My responses are in the attachment to this letter and will be sent via fax, email and U.S. mail as per your instructions. I appreciate the opportunity to be of assistance to you and Members of the Committee. Please feel free to contact me should you need further information or if I can help in any way.

Very truly yours,

Julie Parsley

Julie Caruthers Parsley
Commissioner

cc: The Honorable Joe Barton, Ranking Member
Committee on Energy and Commerce

The Honorable Rick Boucher, Chairman
Subcommittee on Energy and Air Quality

The Honorable J. Dennis Hastert, Ranking Member
Subcommittee on Energy and Air Quality

The Honorable Michael C. Burgess
Subcommittee on Energy and Air Quality

Attachment

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ANSWERS TO SUBMITTED QUESTIONS OF HON. MICHAEL C. BURGESS FROM JULIE CARUTHERS PARSLEY

1. Transmission siting and investment have been a problem in the United States. How has Texas been so successful in siting and building new transmission? What are Competitive Renewable Energy Zones and how will they work?

I believe that the major factors that have impeded the construction of new transmission facilities in the United States have been:

1. Lack of regulatory certainty, particularly uncertainty about the recovery of investment in new transmission facilities;
2. Market structures and rules that resulted in impediments to developing new transmission facilities; and
3. Environmental and land-use concerns.

In Texas, we have adopted measures to address the first two issues. With respect to environmental and land-use concerns, these issues arise in Texas in connection with transmission proposed for urban and suburban areas and environmentally sensitive areas. Much of Texas, particularly in areas in which renewable resources occur, is sparsely populated, and these issues have not been as prominent as in other areas of the United States.

Uncertainty about regulatory decisions, particularly regarding cost recovery, has been an issue in many areas of the United States for several reasons. In areas where Regional Transmission Organizations were being formed, there was a period in which the rules for the recovery of transmission investment were changing. While the new rules were being debated by interested persons and being reviewed by regulatory bodies, there was uncertainty about cost recovery. In addition, in many areas of the United States, transmission projects might affect several states, and there could be different perspectives among affected regulatory bodies about the need for additional transmission facilities and the recovery of their costs.

In the Electric Reliability Council of Texas (ERCOT), the Texas Public Utility Commission (PUC) is the sole regulatory body that has responsibility for licensing and cost recovery for transmission expansion. Transmission facilities in ERCOT do not affect other states, and ERCOT is subject to regulation by the Texas PUC both for retail and wholesale issues. Thus, the prospect for conflicts among regulatory bodies is virtually eliminated. In addition, the PUC has adopted rules that remove much of the uncertainty about cost recovery for transmission. Texas has adopted a regional transmission rate that allocates transmission costs to all load-serving utilities in the region on the basis of peak demand, which is called a "postage-stamp" transmission rate, along with a mechanism that allows for annual adjustments of transmission charges to reflect new investment in transmission. The postage-stamp rate was adopted in ERCOT in 1996. Accordingly, there was not a long period in which there was uncertainty about how investment in transmission would be recovered. The rules for recovering the costs of transmission are clear, simple, and stable.

One of the reasons that the Texas PUC adopted a postage-stamp rate for transmission in which the costs are charged to load-serving utilities was its view that many of the transmission facilities in the region served multiple purposes and customers. Rather than trying to determine, on a line-by-line basis, which class of customers or generators would primarily benefit from the project, we adopted the philosophy that all transmission projects benefit the integrated electric grid, so all users should pay the costs. This approach has eliminated much of the contention over building transmission, and has both streamlined the process and greatly reduced the uncertainty surrounding projects.

In ERCOT, we not only use a transmission rate in which all load-serving utilities bear a share of the cost of transmission, but all wholesale customers have the same right to transmission service, and we have assigned to the ERCOT Independent System Operator the responsibility for planning the ERCOT bulk-transmission system. Therefore, the planning responsibility is not in the hands of a company that has an interest in whether transmission is built, but in a neutral planning organization whose mandate is to enhance reliability and facilitate a competitive wholesale market.

The statute and rules related to Competitive Renewable Energy Zones (CREZs) were developed to address issues specific to renewable energy. CREZs are areas throughout Texas, to be designated by the PUC, in which renewable energy resources and suitable land areas are sufficient to develop generation capacity from renewable energy technologies. The PUC is required to develop a transmission plan for delivering that renewable energy to areas where it can be consumed. The CREZ framework was developed, in part, to address timing challenges since traditional processes require significant generator commitments before the transmission upgrades are considered and renewable generation can be operational within 18 months, while transmission lines often require up to 5 years for construction. In addition, because the lines needed for renewable generation are typically not needed for reliability, there is difficulty getting approval through standard processes. The purpose of the CREZ proceedings is to assess interest in renewable generation in specific areas and then develop a plan to construct transmission in a manner that is most beneficial and cost-effective to customers. The PUC initiated the first CREZ proceeding in January 2007, and it expects to enter an order in this proceeding in July.

2. Please describe the concept of renewable transmission corridors and how they would work.

The concept of national interest electric transmission corridors was one of the provisions in the Energy Policy Act of 2005 to supplement state transmission siting efforts for the development of stronger energy infrastructure. As you know, the Department of Energy (DOE) is considering national corridors based on several factors, including the economic vitality and growth of the corridor or end markets served by the corridor, as well as issues such as energy independence, reliance on national energy policy, and enhancement of national defense and homeland security. If national leadership seeks to promote renewable resources, renewable potential could also be reviewed within a framework similar to that of the DOE. These corridors could be critical to the success of a national renewable mandate, because renewable generation is often located far from load centers, and this generation cannot be used by consumers unless transmission exists to move the energy to load centers.

The transmission facilities that are being developed in Texas as a part of the CREZ proceeding, as discussed above, are in effect, renewable transmission corridors. The critical elements of the CREZ proceeding are designating areas that are suitable for renewable energy development, identifying related transmission facilities, and relying on financial commitments of developers of renewable projects to make these decisions.

3. Please describe how a vibrant, competitive market was developed in Texas that encourages the development of more renewable energy.

As I mentioned in my earlier testimony, I believe a commitment by Texas leadership to renewable energy, facilitated by the following three essential factors, has encouraged the development of renewable energy in Texas: robust markets for renewable energy; significant transmission investment; and positive economic incentives. First, a commitment in competitive wholesale and retail markets has facilitated willing buyers and sellers to expand the growth of renewable resources. Second, utilities have made significant commitments to improve the transmission infrastructure in ERCOT, including over $2.2 billion from 1999 to 2005 with an additional $3.1 billion expected from 2006 to 2012. This level of transmission investment is due, in large part, to the mandate from the State Legislature that wholesale transmission services are priced based on the postage-stamp method and costs are socialized across ERCOT. In addition, the Texas Legislature directed the PUC to designate competitive renewable energy zones and develop a plan to construct transmission capacity necessary to deliver renewable energy to consumers. Finally, the Federal Production Tax Credit and Texas Renewable Energy Credits trading program offer positive economic incentives to help make the costs of wind energy competitive, especially during times of high natural gas prices.

4. We learned at an earlier hearing that instituting a cap-and-trade scheme in Germany raised electricity prices 30 percent to 40 percent. What would happen to the Texas economy if electric rates went up 40 percent after instituting a cap-and-trade system?

It is unclear how a cap-and-trade program would affect electric rates in Texas for two reasons. First, we have a competitive wholesale market and some costs may be absorbed by the generators. Second, approximately 72 percent of electric generation in ERCOT is fueled by natural gas, and it is unclear how natural gas generation would be affected by a cap-and-trade program.

That said, the Texas economy relies heavily on manufacturing, refining, oil and gas production, and agriculture, industries which use a great deal of electricity. If prices were to rise an additional 40 percent, it would obviously be extremely detrimental to both residential and business customers, and to economic development in Texas.

CITY OF ATLANTA

SHIRLEY FRANKLIN
MAYOR

55 TRINITY AVE. S.W
ATLANTA, GEORGIA 30335-0300

TEL (404) 330-6100

March 15, 2007

The Honorable Rick Boucher
U.S. House of Representatives
Chair, Subcommittee on Energy and Air Quality
House Energy and Commerce Committee
2187 Rayburn House Office Building
Washington, DC 20515

The Honorable J. Dennis Hastert
U.S. House of Representatives
Ranking Member, Subcommittee on Energy and Air Quality
House Energy and Commerce Committee
2304 Rayburn House Office Building
Washington, DC 20515

Dear Representative Boucher and Representative Hastert:

Global warming is a serious threat to our cities, our nation, and our world. The recently released Summary for Policy Makers from the Inter-governmental Panel on Climate Change confirms that the climate is, in fact, warming, and that carbon dioxide is the most important anthropogenic greenhouse gas. Anthropogenic carbon dioxide emissions result from the burning of fossil fuels for transportation, electricity generation, and commercial and industrial operations. Carbon dioxide emissions are also affected by changes in our land use patterns, as forested areas are converted to residential, commercial, agricultural, or industrial uses. Because of their high population densities and the concentration of industry and commercial uses, cities represent major contributors to the production of carbon dioxide emissions. It thus becomes vitally important that cities participate in leading the way on reducing emissions.

Despite uncertainty about the precise long-term effects of global warming, there is no longer any doubt that it is occurring and that human activity is at least partly responsible. Predicted effects of continued warming include the possibilities of severe drought, catastrophic sea level rise, increased intensity of storms, shifts in growing seasons and agricultural productivity, and species extinction. If even a small percentage of these effects came to pass, we will be faced with increased risks to human health, displacement of a large segment of our population, and economic hardship. Given the risks predicted by even more conservative estimates of the effects of global warming, it is imperative that we take action to reduce our contribution to this threat.

The City of Atlanta has already begun to take steps to address the issue of global warming and to reduce our global warming pollution emissions. On May 23, 2005, I endorsed the U.S. Mayors Climate Protection Agreement. This agreement represents a commitment to strive to meet the Kyoto Protocol's global warming pollution reduction goals for the City of Atlanta.

In 2003 Atlanta passed an ordinance requiring that all new city-financed construction be certified silver under the Leadership in Energy and Environmental Design (LEED) guidelines. By making our city buildings more efficient, we help lead by example. Atlanta now leads the country in LEED Certified buildings in the US with a total of 53 projects that are either already certified or underway.

We have also made a commitment to encouraging sustainable development within the city. This commitment will not only help reduce the global warming emissions created by excess mobile emissions, but also improve the quality of life for our citizens by making communities more accommodating to the live, work and play environments that people are looking for and by providing more transportation alternatives. Atlanta's BeltLine project will convert underutilized or abandoned railroad corridors, residential, commercial, and industrial land into a continuous system of transit and greenways that circle the city center. The Livable Centers Initiative (LCI), a program offered by the Atlanta Regional Commission, encourages local jurisdictions to create sustainable and livable communities that link development and transportation improvements. There are currently 12 LCI's in the City of Atlanta, 8 of which are managed by the City.

We have also committed to educating our employees and citizens about the importance of environmental sustainability and reducing greenhouse gas emissions. We have launched a new Earth Day initiative, Arms Around Atlanta, to bring together businesses and organizations that are concerned with environmental responsibility at a festival and educational fair for the entire city. Through this effort, we have forged alliances with groups that are dedicated to helping Atlanta reach its goals of global warming pollution reduction and environmental sustainability.

In addition, I am about to launch a comprehensive effort on sustainability in our community, which will include a focus on climate change. I will shortly be announcing the Sustainable Atlanta project, which will bring together leaders from the business, environmental groups, health organizations, faith-based groups, community groups, and non-profits to develop a framework for how Atlanta can build a blueprint for sustainability in our community. We will focus our effort broadly and include plans for how City operations can become more environmentally sustainable, how the City can encourage good sustainability practices through its policy making, and how the City can act as a catalyst to create momentum throughout all the stakeholders in our community to engage in and promote sustainability practices within their own organizations and the broader community. This effort will span a number of months and is designed to create the foundation for best practices into the future. We anticipate that this leadership by the City will lead to additional focus on what can be done to address climate change at the local government level.

The benefits of taking action are numerous. Reducing our carbon dioxide emissions not only reduces our impact on global warming; it is often coupled with reduction in many other harmful emissions, such as sulfur dioxide, nitrogen oxides, and mercury, which effect our air quality, water quality, and public health. Reducing global warming emissions is vital to the continued well-being of our citizens, both locally and globally. In addition, efforts to reduce emissions which focus on efficiency and conservation make good economic sense for our city as we strive to maintain a high quality of life for the many people who come to the City looking for these qualities.

However, it is not enough for local governments working independently to try to reduce emissions. If we truly are to make a difference, we must have support and leadership from state and federal government as well. It is time for the federal government to commit to meeting or beating the target that many US cities have set for themselves – reducing global warming pollution levels to 7 percent below 1990 levels by 2012. By demonstrating a commitment to reducing our dependence on fossil fuels and developing clean and efficient energy generation technologies, the United States can lead the way for the world in addressing this global threat.

Sincerely

Shirley Franklin

Shirley Franklin

cc: Representative John Barrow

Gregory J. Nickels
Mayor of Seattle

December 6, 2006

The Honorable Jay Inslee
U.S. House of Representatives
403 Cannon HOB
Washington DC 20515-4701

Dear ~~Representative Inslee~~: Jay

As you begin to set priorities for the 110th Congress, I would like to urge you to put the issue of climate disruption at the top of your agenda.

There is a real hunger for leadership on this threat to our planet. In early 2005 I launched the US Mayors Climate Protection Agreement, and which has been signed by 333 mayors from 48 states and the District of Columbia. These mayors have committed to reducing climate pollution in our cities and communities. We share a belief that the U.S. should be a world leader, not a by-stander, in preventing climate change.

To succeed, we need leadership at the state and federal levels. I urge Congress to pass bi-partisan greenhouse gas legislation that includes: 1) clear timetables and emissions limits; and 2) a flexible, market-based system of tradable allowances among emitting industries. As a group, we are poised to work with you to build support for taking action now to reduce greenhouse gas emissions. The US Conference of Mayors' newly formed US Mayors Council on Climate Protection, which I co-chair, will be holding its first meeting in Washington, D.C. in late January. Federal climate policy will be our main topic of discussion.

I would be happy to work with you and your staff to ensure that the cities' work on climate change supports your action at the federal level.

If you or your staff needs any additional information, please have them contact Shauna Larsen, the City's Federal Liaison in Washington, DC, at 202-659-2229 and she will be happy to assist you.

Sincerely,

GREG NICKELS
Mayor of Seattle

Thank you for your support on this critical issue!

Seattle City Hall, 7th Floor, 600 Fourth Avenue, P.O. Box 94749, Seattle, WA 98124-4749
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March 14, 2007

The Honorable Rick Boucher
Chairman, Subcommittee on Energy and Air Quality
Energy and Commerce Committee
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Boucher:

On behalf of The U.S. Conference of Mayors, I wanted to thank you and the Committee for holding these climate change hearings and for this opportunity to outline the views of the nation's mayors on this important issue.

The U.S. Conference of Mayors has a strong record on pursuing policies that protect our climate from the impact of greenhouse gas emissions. We have policy encouraging alternative energy sources and fuels, transit-oriented development, energy-efficient buildings, and the concept of an Energy and Environment Block Grant. An executive summary of these policy recommendations is attached for your information.

As this committee debates the issue of climate change, the Mayors would like for you to consider a multi-level approach to help deal with this problem. We believe that if this nation is even potentially going to be successful with solving this crisis, we will need both a top-down and a bottoms-up approach.

A cap and trade program as well as encouragement for alternative energy sources and fuel-efficiency will be needed to reduce greenhouse gas emissions at the national level. However, there are many solutions that are coming from the local level. In fact, the Conference of Mayors has released a publication of best practices highlighting what local governments are doing that lessens our impact on climate change as well as improving the environment.

Through the Conference's work, we have determined that much more could be done at the local level with some additional resources. That is why the Mayors of this nation are proposing the formation of an Energy and Environmental Block Grant (EEBG), modeled after the Community Development Block Grant program.

Our proposal would require local governments to determine their carbon footprint and create a plan for reducing their greenhouse gas emission levels by a certain percentage. Monies from the EEBG would be used to create and implement this plan.

We believe that many programs that are already being implemented in some communities can be replicated in others if given the proper resources to get these programs off the ground. We think this will have a tremendous impact on reducing greenhouse gas emissions in every major city and county and therefore reducing our overall emissions in the United States.

The Conference of Mayors urges you to consider this proposal and we would like to work with this committee to try to implement this solution. If you have any questions, please contact Judy Sheahan (202-861-6775) or Debra DeHaney-Howard (202-861-6702) of my staff. Thank you for your consideration.

Sincerely,

Tom cochran

Tom Cochran
Executive Director

THE UNITED STATES CONFERENCE OF MAYORS CLIMATE PROTECTION POLICY RECOMMENDATIONS
EXECUTIVE SUMMARY

Creating an Energy and Environmental Block Grant

- The U.S. Conference of Mayors proposes the creation of an ***Energy and Environmental Block Grant,*** modeled after the highly successful Community Development Block Grant, to provide funding directly to cities and urban counties for programs that will assist them in their climate change efforts.

Establishing National Standards for Climate Change

- The U.S. Conference of Mayors calls upon the federal government to enact policies and programs to meet or beat the target of reducing global warming pollution levels to seven percent below 1990 levels by 2012 and to enact bipartisan greenhouse gas reduction legislation that includes clear timetables and emissions limits and a flexible, market-based system of tradable allowances among emitting industries.

Encouraging Renewable Energy Sources and Increasing America's Energy Independence

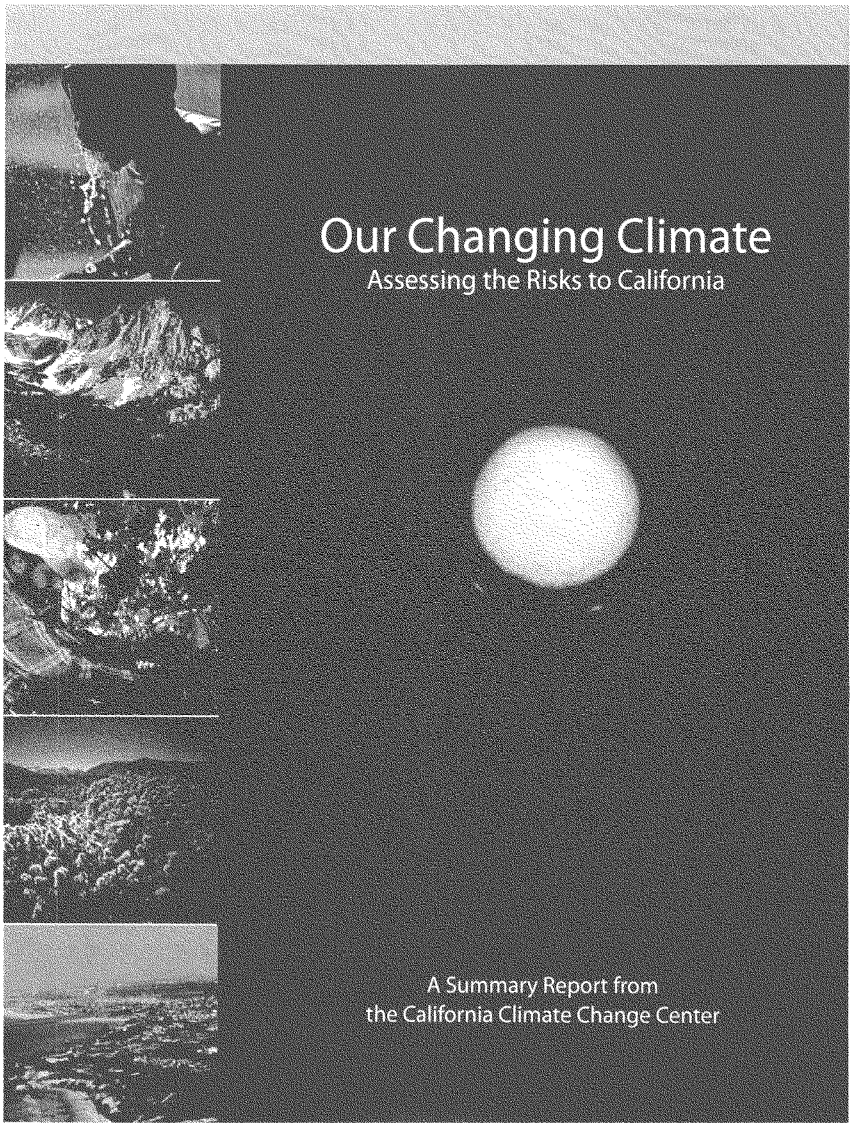
- The U.S. Conference of Mayors calls upon the federal government to develop, adopt, and implement a comprehensive energy policy which focuses on (1) reducing the United States' dependence on fossil fuels, (2) dramatically increasing the production of energy and fuel from clean, sustainable, and renewable sources, (3) appropriate pricing of fossil fuels to reflect actual societal and environmental costs and to encourage conservation, and (4) increasing production of vehicles powered by clean renewable sources of energy.

Providing Incentives to Encourage Energy-Efficient and Green Building Standards and Practices

- The U.S. Conference of Mayors calls upon the federal government and Mayors to increase the fossil-fuel reduction standard for all new buildings to carbon neutral by 2030, achieving 60 percent carbon neutrality in 2010, 70 percent in 2015, 80 percent in 2020, and 90 percent in 2025 and to encourage cost-effective, energy-efficient, green building practices in all new construction, renovations, repairs, and replacement of buildings.

Encouraging Alternative Transportation and Fuel Choices

- The U.S. Conference of Mayors calls upon the federal government to increase future investment in a national initiative that will substantially and rapidly expand both the public mass transit system network and research into new transit technologies and alternative fuel sources as well as funding transportation strategies that provide travelers and commuters with options such as walking, biking, carpooling, vanpooling, teleworking, and fast, reliable, and convenient public transportation, and reduce the demand for travel in single-occupancy vehicles.



Our Changing Climate

Assessing the Risks to California

A Summary Report from
the California Climate Change Center

Because most global warming emissions remain in the atmosphere for decades or centuries, the choices we make today greatly influence the climate our children and grandchildren inherit. The quality of life they experience will depend on if and how rapidly California and the rest of the world reduce these emissions.

In California and throughout western North America, signs of a changing climate are evident. During the last 50 years, winter and spring temperatures have been warmer, spring snow levels in lower- and mid-elevation mountains have dropped, snowpack has been melting one to four weeks earlier, and flowers are blooming one to two weeks earlier.

These regional changes are consistent with global trends. During the past 100 years, average temperatures have risen more than one degree Fahrenheit worldwide. Research indicates that much of this warming is due to human activities, primarily burning fossil fuels and clearing forests, that release carbon dioxide (CO_2) and other gases into the atmosphere, trapping in heat that would otherwise escape into space. Once in the atmosphere, these heat-trapping emissions remain there for many years—CO_2, for example, lasts about 100 years. As a result, atmospheric concentration of CO_2 has increased more than 30 percent above pre-industrial levels. If left unchecked, by the end of the century CO_2 concentrations could reach levels three times higher than pre-industrial times, leading to dangerous global warming that threatens our public health, economy, and environment.

The latest projections, based on state-of-the art climate models, indicate that if global heat-trapping emissions proceed at a medium to high rate, temperatures in California are expected to rise 4.7 to 10.5°F by the end of the century. In contrast, a lower emissions rate would keep the projected warming to 3 to 5.6°F. These temperature increases would have widespread consequences including substantial loss of snowpack, increased risk of large wildfires, and reductions in the quality and quantity of certain agricultural products. The state's vital resources and natural landscapes are already under increasing stress due to California's rapidly growing population, which is expected to grow from 35 million today to 55 million by 2050.

This document summarizes the recent findings of the California Climate Change Center's "Climate Scenarios" project, which analyzed a range of impacts that projected rising temperatures would likely have on California. The growing severity of the consequences as temperature rises underscores the importance of reducing emissions to minimize further warming. At the same time, it is essential to identify those consequences that may be unavoidable, for which we will need to develop coping and adaptation strategies.

In 2003, the California Energy Commission's Public Interest Energy Research (PIER) program established the California Climate Change Center to conduct climate change research relevant to the state. This Center is a virtual organization with core research activities at Scripps Institution of Oceanography and the University of California, Berkeley, complemented by efforts at other research institutions. Priority research areas defined in PIER's five-year Climate Change Research Plan are: monitoring, analysis, and modeling of climate; analysis of options to reduce greenhouse gas emissions; assessment of physical impacts and of adaptation strategies; and analysis of the economic consequences of both climate change impacts as well as the efforts designed to reduce emissions.

Executive Order #S-3-05, signed by Governor Arnold Schwarzenegger on June 1, 2005, called for the California Environmental Protection Agency (CalEPA) to prepare biennial science reports on the potential impact of continued global warming on certain sectors of the California economy. CalEPA entrusted PIER and its California Climate Change Center to lead this effort. The "Climate Scenarios" analysis summarized here is the first of these biennial science reports, and is the product of a multi-institution collaboration among the California Air Resources Board, California Department of Water Resources, California Energy Commission, CalEPA, and the Union of Concerned Scientists.

Cover photos: (sunset) Photos.com; (from top to bottom) AP Photo/Paul Sakuma, iStockphoto, IndexStock, Picturequest, iStockphoto. Above: Bureau of Land Management. Background: IndexStock

California's Future Climate

California's climate is expected to become considerably warmer during this century. How much warmer depends on the rate at which human activities, such as the burning of fossil fuels, continue. The projections presented here illustrate the climatic changes that are likely from three different heat-trapping emissions scenarios (see figure below).

Projected Warming

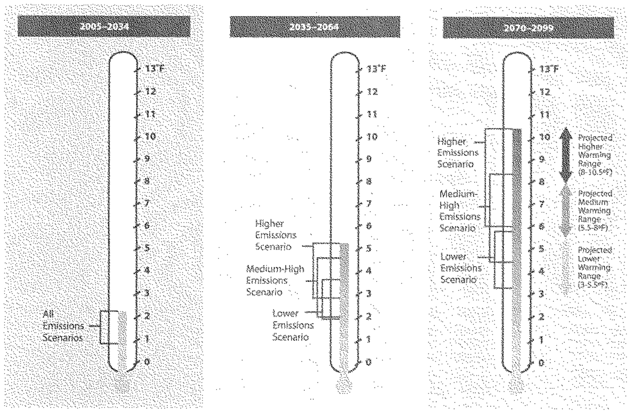
Temperatures are expected to rise substantially in all three emissions scenarios. During the next few decades, the three scenarios project average temperatures to rise between 1 and 2.3°F; however, the projected temperature increases begin to diverge at mid-century so that, by the end of the century, the temperature increases projected in the higher emissions scenario are approximately twice as high as those projected in the lower emissions scenario. Some climate models indicate that warming would be greater in summer than in winter, which would have widespread effects on ecosystem health, agricultural production, water use and availability, and energy demand.

Toward the end of the century, depending on future heat-trapping emissions, statewide average temperatures are expected to rise between 3 and 10.5°F. The analysis presented here examines the future climate under three projected warming ranges:[1]

- **Lower warming range:** projected temperature rises between 3 and 5.5°F
- **Medium warming range:** projected temperature rises between 5.5 and 8°F
- **Higher warming range:** projected temperature rises between 8 and 10.5°F

Precipitation

On average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. The Mediterranean seasonal precipitation pattern is expected to continue, with most precipitation falling during winter from North Pacific storms. One of the three climate models projects slightly wetter winters, and another projects slightly drier winters with a 10 to 20 percent decrease in total annual precipitation. However, even modest changes would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized.



California is expected to experience dramatically warmer temperatures during the 21st century. This figure shows projected increases in statewide annual temperatures for three 30-year periods. Ranges for each emissions scenario represent results from state-of-the-art climate models.

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[1] These warming ranges are for illustrative purposes only. These ranges were defined in the original Climate Scenarios analysis to capture the full range of projected temperature rise. The exact values for the warming ranges as presented in the original summary report are: lower warming range (3 to 5.4°F); medium warming range (5.5 to 7.9°F); and higher warming range (8 to 10.4°F).

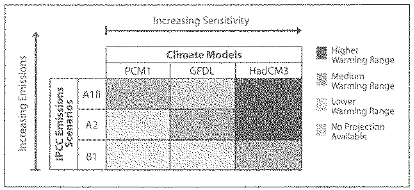
Projecting Future Climate

How much temperatures rise depends in large part on how much and how quickly heat-trapping emissions accumulate in the atmosphere and how the climate responds to these emissions. The projections presented in this report are based on three different heat-trapping emissions scenarios and three climate models.

Emissions Scenarios

The three global emissions scenarios used in this analysis were selected from a set of scenarios developed by the Intergovernmental Panel on Climate Change's (IPCC) *Special Report on Emissions Scenarios*, based on different assumptions about population growth and economic development (measured in gross domestic product).

- The **lower emissions scenario (B1)** characterizes a world with high economic growth and a global population that peaks by mid-century and then declines. There is a rapid shift toward less fossil fuel-intensive industries and introduction of clean and resource-efficient technologies. Heat-trapping emissions peak about mid-century and then decline; CO_2 concentration approximately doubles, relative to pre-industrial levels, by 2100.
- The **medium-high emissions scenario (A2)** projects continuous population growth and uneven economic and technological growth. The income gap between now-industrialized and developing parts of the world does not narrow. Heat-trapping emissions increase through the 21st century; atmospheric CO_2 concentration approximately triples, relative to pre-industrial levels, by 2100.
- The **higher emissions scenario (A1fi)** represents a world with high fossil fuel-intensive economic growth, and a global population that peaks mid-century then declines. New and more efficient technologies are introduced toward the end of the century. Heat-trapping emissions increase through the 21st century; CO_2 concentration more than triples, relative to pre-industrial levels, by 2100.



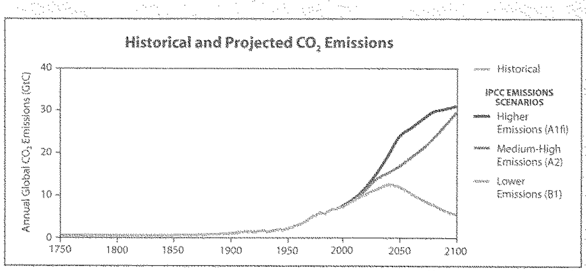
This matrix shows the temperature increases that result from the three climate models, assuming emission inputs indicated in the IPCC emissions scenarios. The resulting temperatures are grouped into three warming ranges defined in the "Climate Scenarios" analysis.

Climate Sensitivity

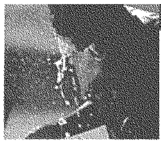
The three models used in this analysis represent different climate sensitivities, or the extent to which temperatures will rise as a result of increasing atmospheric concentrations of heat-trapping gases. Climate sensitivity depends on Earth's response to certain physical processes, including a number of "feedbacks" that might amplify or lessen warming. For example, as heat-trapping emissions cause temperatures to rise, the atmosphere can hold more water vapor, which traps heat and raises temperatures further—a positive feedback. Clouds created by this water vapor could absorb and re-radiate outgoing infrared radiation from Earth's surface (another positive feedback) or reflect more incoming shortwave radiation from the sun before it reaches Earth's surface (a negative feedback).

Because many of these processes and their feedbacks are not yet fully understood, they are represented somewhat differently in different global climate models. The three global climate models used in this analysis are:

- **National Center for Atmospheric Research Parallel Climate Model (PCM1):** low climate sensitivity
- **Geophysical Fluids Dynamic Laboratory (GFDL) CM2.1:** medium climate sensitivity
- **United Kingdom Met Office Hadley Centre Climate Model, version 3 (HadCM3):** medium-high climate sensitivity



As this figure shows, CO_2 emissions from human activities (such as the burning of fossil fuels) were negligible until around the so-called industrial age starting in the 1850s.



Public Health

Continued global warming will affect Californians' health by exacerbating air pollution, intensifying heat waves, and expanding the range of infectious diseases. The primary concern is not so much the change in *average* climate but the projected increase in *extreme* conditions, which pose the most serious health risks.

Poor Air Quality Made Worse

Californians currently experience the worst air quality in the nation, with more than 90 percent of the population living in areas that violate the state's air quality standard for either ground-level ozone or airborne particulate matter. These pollutants can cause or aggravate a wide range of health problems including asthma and other acute respiratory and cardiovascular diseases, and can decrease lung function in children. Combined, ozone and particulate matter contribute to 8,800 deaths and $71 billion in healthcare costs every year. If global background ozone levels increase as projected in some scenarios, it may become impossible to meet local air quality standards.

Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, if temperatures rise to the medium warming range, there will be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if temperature rises are kept in the lower warming range.

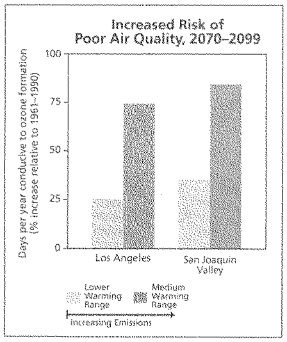
Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The most recent analysis suggests that if heat-trapping gas emissions are not significantly reduced, large wildfires could become up to 55 percent more frequent toward the end of the century.

More Severe Heat

By 2100, if temperatures rise to the higher warming range, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and above 95°F in Sacramento. This is a striking increase over historical patterns (see chart on p. 6), and almost twice the increase projected if temperatures remain within or below the lower warming range.

As temperatures rise, Californians will face greater risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat. By mid century, extreme heat events in urban centers such as Sacramento, Los Angeles, and San Bernardino could cause two to three times more heat-related deaths than occur today. The members of the population most vulnerable to the effects of extreme heat include people who are already ill; children; the elderly;

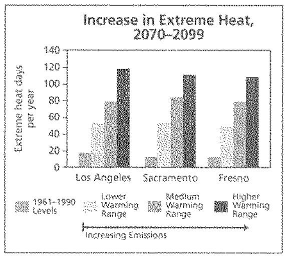
As temperatures rise, Californians will face greater risk of death from dehydration, heat stroke, heart attack, and other heat-related illnesses.

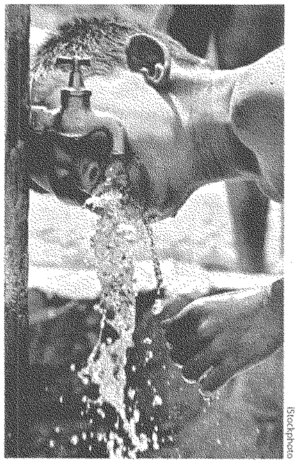


Cars and power plants emit pollutants that contribute to global warming and poor air quality. As temperatures increase, it will be increasingly difficult to meet air quality standards throughout the state.

and the poor, who may lack access to air conditioning and medical assistance.

More research is needed to better understand the potential effects of higher temperatures and the role that adaptation can play in minimizing these effects. For example, expanding air conditioner use can help people cope with extreme heat; however, it also increases energy consumption, which, using today's fossil fuel-heavy energy sources, would contribute to further global warming and air pollution.





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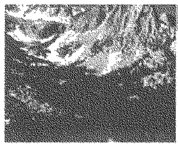


Water Resources

If global warming emissions continue unabated, Sierra Nevada snowpack could decline 70 to 90 percent, with cascading effects on winter recreation, water supply, and natural ecosystems.

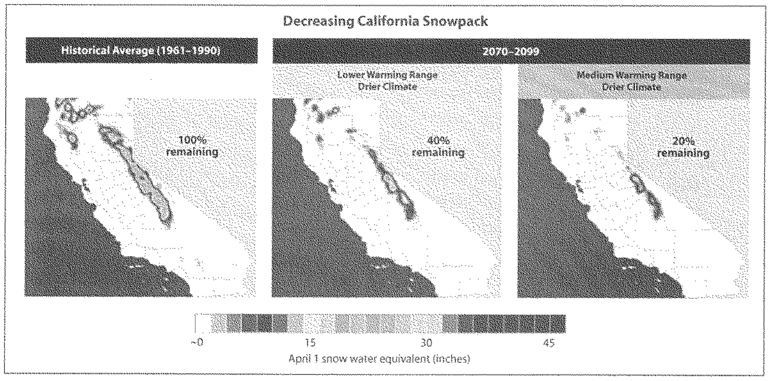
Most of California's precipitation falls in the northern part of the state during the winter while the greatest demand for water comes from users in the southern part of the state during the spring and summer. A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

Decreasing Sierra Nevada Snowpack

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. How much snowpack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under wetter climate projections, the loss of snowpack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate skiing and other snow-related recreational activities. If global warming emissions are significantly curbed and temperature increases are kept in the lower warming range, snowpack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range.

Challenges in Securing Adequate Water Supplies

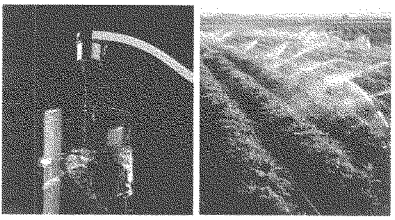
Continued global warming will increase pressure on California's water resources, which are already over-stretched by the demands of a growing


Decreasing California Snowpack

economy and population. Decreasing snowmelt and spring stream flows coupled with increasing demand for water resulting from both a growing population and hotter climate could lead to increasing water shortages. By the end of the century, if temperatures rise to the medium warming range and precipitation decreases, late spring stream flow could decline by up to 30 percent. Agricultural areas could be hard hit, with California farmers losing as much as 25 percent of the water supply they need.

Water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. In particular, saltwater intrusion would threaten the quality and reliability of the major state fresh water supply that is pumped from the southern edge of the Sacramento/San Joaquin River Delta.

Coping with the most severe consequences of global warming would require major changes in water management and allocation systems. As more winter precipitation falls as rain instead of snow, water managers will have to balance the need to fill constructed reservoirs for water supply and the need to maintain reservoir space for winter flood control. Some additional storage could be developed; however, the economic and environmental costs would be high.


Left: Photodisc. Right: Corbis

Rising temperatures, potentially exacerbated by decreasing precipitation, could increase the risk of water shortages in urban and agricultural sectors.

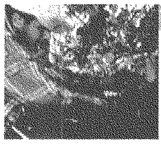
Potential Reduction in Hydropower

Higher temperatures will likely increase electricity demand due to higher air conditioning use. Even if the population remained unchanged, toward the end of the century annual electricity demand could increase by as much as 20 percent if temperatures rise into the higher warming range. (Implementing aggressive efficiency measures could lower this estimate.)

At the same time, diminished snow melt flowing through dams will decrease the potential for hydropower production, which now comprises about 15 percent of California's in-state electricity production. If temperatures rise to the medium warming range and precipitation decreases by 10 to 20 percent, hydropower production may be reduced by up to 30 percent. However, future precipitation projections are quite uncertain so it is possible that precipitation may increase and expand hydropower generation.

Loss of Winter Recreation

Continued global warming will have widespread implications for winter tourism. Declines in Sierra Nevada snowpack would lead to later starting and earlier closing dates of the ski season. Toward the end of the century, if temperatures rise to the lower warming range, the ski season at lower and middle elevations could shorten by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.



Agriculture

California is home to a $30 billion agriculture industry that employs more than one million workers. It is the largest and most diverse agriculture industry in the nation, producing more than 300 commodities including half the country's fruits and vegetables. Increased heat-trapping emissions are expected to cause widespread changes to this industry, reducing the quantity and quality of agricultural products statewide.

Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

To prepare for these changes, and to adapt to changes already under way, major efforts will be needed to move crops to new locations, respond to climate variability, and develop new cultivars and agricultural technologies. With adequate research and advance preparation, some of the consequences could be reduced.

Increasing Temperature

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Crops that are likely to be hard hit include:

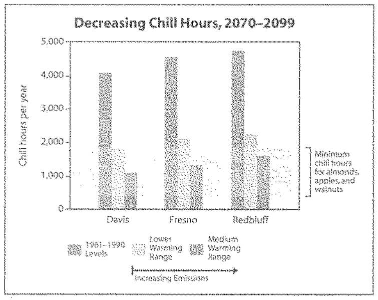
Wine Grapes

California is the nation's largest wine producer and the fourth-largest wine producer worldwide. High-quality wines produced throughout the Napa and Sonoma Valleys and along the northern and central coasts generate $3.2 billion in revenue each year. High temperatures during the growing season can cause premature ripening and reduce grape quality. Temperature increases are expected to have only modest effect on grape quality in most regions over the next few decades. However, toward the end of the century, wine grapes could ripen as much as one to two months earlier, which will affect grape quality in all but the coolest coastal locations (Mendocino and Monterey Counties).

IndexOpen

Fruits and Nuts

Many fruit and nut trees are particularly sensitive to temperature changes because of heat-accumulation limits and chill-hour requirements. Heat accumulation, which refers to the total hours during which temperatures reach between 45 and 95°F, is critical for fruit development. Rising temperatures could increase fruit development rates and decrease fruit size. For example, peaches and nectarines developed and were harvested early in 2004 because of warm spring temperatures. The fruits were smaller than normal, which placed them in a lower quality category.



Decreasing Chill Hours, 2070–2099

A minimum number of chill hours (hours during which temperatures drop below 45°F) is required for proper bud setting; too few hours can cause late or irregular bloom, decreasing fruit quality and subsequent marketable yield. California is currently classified as a moderate to high chill-hour region, but chill hours are diminishing in many areas of the state. If temperatures rise to the medium warming range, the number of chill hours in the entire Central Valley is expected to approach a critical threshold for some fruit trees.

Milk

California's $3 billion dairy industry supplies nearly one-fifth of the nation's milk products. High temperatures can stress dairy cows, reducing milk production. Production begins to decline at temperatures as low as 77°F and can drop substantially as temperatures climb above 90°F. Toward the end of the century, if temperatures rise to the higher warming range, milk production is expected to decrease by up to 20 percent. This is more

Increasing temperatures will likely decrease the quantity and quality of some agricultural commodities, such as certain varieties of fruit trees, wine grapes, and dairy products.

than twice the reduction expected if temperatures stay within or below the lower warming range.

Expanding Ranges of Agricultural Weeds

Noxious and invasive weeds currently infest more than 20 million acres of California farmland, costing hundreds of millions of dollars annually in control measures and lost productivity. Continued climate change will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps.

Increasing Threats from Pests and Pathogens

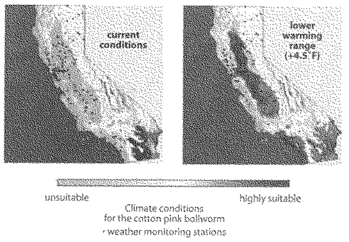
California farmers contend with a wide range of crop-damaging pests and pathogens. Continued climate change is likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates. For example, the pink bollworm, a common pest of cotton crops, is currently a problem only in southern desert valleys because it cannot survive winter frosts elsewhere in the state. However, if winter temperatures rise 3 to 4.5°F, the pink bollworm's range would likely expand northward, which could lead to substantial economic and ecological consequences for the state.

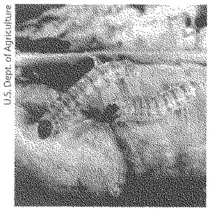
Temperature is not the only climatic influence on pests. For example, some insects are unable to cope in extreme drought, while others cannot survive in extremely wet conditions. Furthermore, while warming speeds up the lifecycles of many insects, suggesting that pest problems could increase, some insects may grow more slowly as elevated CO_2 levels decrease the protein content of the leaves on which they feed.

Multiple and Interacting Stresses

Although the effects on specific crops of individual factors (e.g., temperatures, pests, water supply) are increasingly well understood, trying to quantify interactions among these and other environmental factors is challenging. For example, the quality of certain grape varieties is expected to decline as temperatures rise. But the wine-grape industry also faces increasing risks from pests such as the glassy-winged sharpshooter, which transmits Pierce's disease. In 2002, this bacterial disease caused damage worth $13 million in Riverside County alone. The optimum temperature for growth of Pierce's disease is 82°F, so this disease is currently uncommon in the cooler northern and coastal regions of the state. However, with continued warming, these regions may face increased risk of the glassy-winged sharpshooter feeding on leaves and transmitting Pierce's disease.

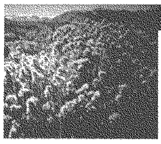
Projected Cotton Pink Bollworm Range Expansion


current conditions
lower warming range (+4.5°F)
unsuitable
highly suitable
Climate conditions
for the cotton pink bollworm
• weather monitoring stations



U.S. Dept. of Agriculture

As temperatures rise, the climate is expected to become more favorable for the pink bollworm (above), a major cotton pest in southern California. The pink bollworm's geographic range is limited by winter frosts that kill over-wintering dormant larvae. As temperatures rise, winter frosts will decrease, greatly increasing the winter survival and subsequent spread of the pest throughout the state.



Forests and Landscapes

California is one of the most climatically and biologically diverse areas in the world, supporting thousands of plant and animal species. The state's burgeoning population and consequent impact on local landscapes is threatening much of this biological wealth. Global warming is expected to intensify this threat by increasing the risk of wildfire and altering the distribution and character of natural vegetation.

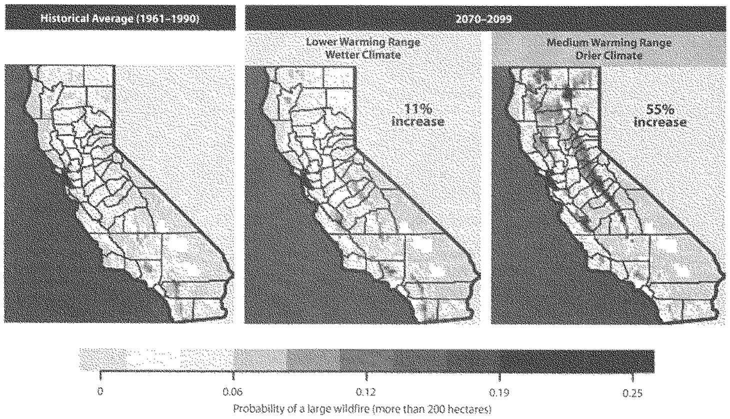
Increasing Wildfires

Fire is an important ecosystem disturbance. It promotes vegetation and wildlife diversity, releases nutrients into the soil, and eliminates heavy accumulation of underbrush that can fuel catastrophic fires. However, if temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range.

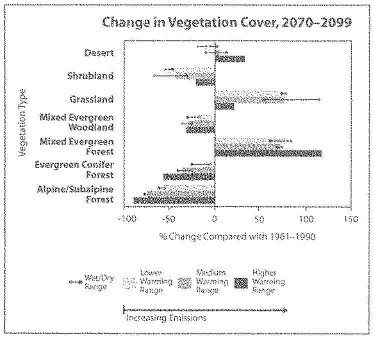
Because wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In many regions, wildfire activity will depend critically on future precipitation patterns. For

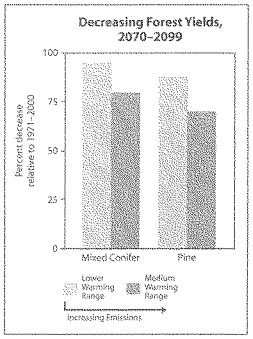
Global warming threatens alpine and subalpine ecosystems, which have no place to move as temperatures rise.

Increasing Wildfire Frequency



Vegetation cover over the 21st century will depend on both temperature and precipitation. The lower and medium warming range bars reflect vegetation cover under a wetter climate (blue) and a drier climate (brown) projected in the different climate models. For the higher warming range, only a drier climate was considered.





example, if precipitation increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are expected to increase by approximately 30 percent toward the end of the century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.

Shifting Vegetation

Land use and other changes resulting from economic development are altering natural habitats throughout the state. Continued global warming will intensify these pressures on the state's natural ecosystems and biological diversity. For example, in northern California, warmer temperatures are expected to shift dominant forest species from Douglas and White Fir to madrone and oaks. In inland regions, increases in fire frequency are expected to promote expansion of grasslands into current shrub and woodland areas. Alpine and subalpine ecosystems are among the most threatened in the state; plants suited to these regions have limited opportunity to migrate "up slope" and are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures.

Declining Forest Productivity

Forestlands cover 45 percent of the state; 35 percent of this is commercial forests such as pine plantations. Recent projections suggest that continued global warming could adversely affect the health and productivity of California's forests. If average statewide temperatures rise to the medium warming range, the productivity of mixed conifer forests is expected to diminish by as much as 18 percent by the end of the century. Yield reductions from pine plantations are expected to be even more severe, with up to a 30 percent decrease by the end of the century.

The risk of large wildfires in California could increase by as much as 55 percent.

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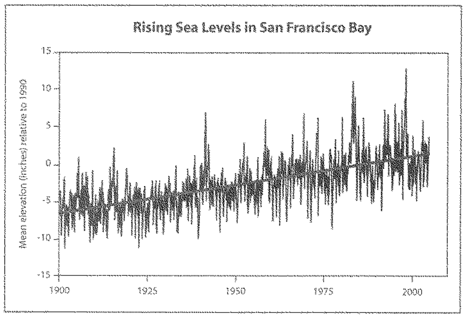
Rising Sea Levels


Rising Sea Levels in San Francisco Bay

California's 1,100 miles of coastline are a major attraction for tourism, recreation, and other economic activity. The coast is also home to unique ecosystems that are among the world's most imperiled. As global warming continues, California's coastal regions will be increasingly threatened by rising sea levels, more intense coastal storms, and warmer water temperatures.

During the past century, sea levels along California's coast have risen about seven inches. If heat-trapping emissions continue unabated and temperatures rise into the higher warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

Increasing Coastal Floods

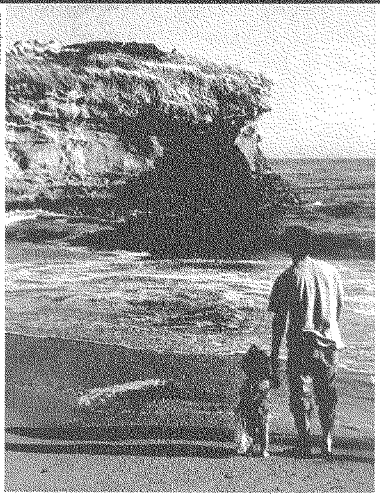
The combination of increasingly severe winter storms, rising mean sea levels, and high tides is expected to cause more frequent and severe flooding, erosion, and damage to coastal structures. Many California coastal areas are at significant risk for flood damage. For example, the city of Santa Cruz is built on the 100-year floodplain and is only 20 feet above sea level. Although levees have been built to contain the 100-year flood, a 12-inch increase in sea levels (projected for the medium warming range of temperatures) would mean storm-surge-induced flood events at the 100-year level would likely occur once every 10 years.

Flooding can create significant damage and enormous financial losses. Despite extensive engineering efforts, major floods have repeatedly breached levees that protect freshwater supplies and islands in the San Francisco Bay Delta as well as fragile marine estuaries and wetlands throughout the

Robert A. Eplett/CA Governor's Office of Emergency Services

Rising sea levels and more intense storm surges could increase the risk for coastal flooding.

Sea levels could rise up to three feet by the end of the century, accelerating coastal erosion, threating vital levees, and disrupting wetlands.

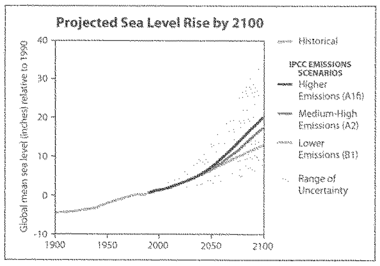


iStockphoto

Many California beaches are threatened from rising sea levels and increased erosion, an expected consequence of continued global warming.

state. Continued sea level rise will further increase vulnerability to levee failures. Some of the most extreme flooding during the past few decades has occurred during El Niño winters, when warmer waters fuel more intense storms. During the winters of 1982–1983 and 1997–1998, for example, abnormally high seas and storm surges caused millions of dollars' worth of damage in the San Francisco Bay area. Highways were flooded as six-foot waves crashed over waterfront bulkheads, and valuable coastal real estate was destroyed.

Continued global warming will require major changes in flood management. In many regions such as the Central Valley, where urbanization and limited river channel capacity already exacerbate rising flood risks, flood damage and flood control costs could amount to several billion dollars.



Projected Sea Level Rise by 2100

Shrinking Beaches

Many of California's beaches may shrink in the future because of rising seas and increased erosion from winter storms. Currently, many beaches are protected from erosion through manmade sand replenishment (or "nourishment") programs, which bring in sand from outside sources to replace the diminishing supply of natural sand. In fact, many of the wide sandy beaches in southern California around Santa Monica, Venice, and Newport Beach were created and are maintained entirely by sand nourishment programs. As sea levels rise, increasing volumes of replacement sand will be needed to maintain current beach width and quality. California beach nourishment programs currently cost millions of dollars each year. As global warming continues, the costs of beach nourishment programs will rise, and in some regions beach replenishment may no longer be viable.

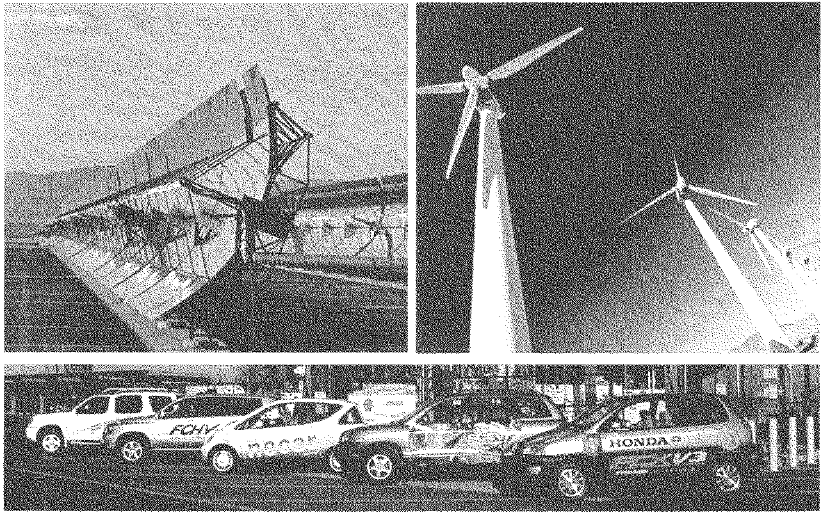
Multiple Causes of Coastal Flooding

Several factors play a role in sea level and coastal flooding, including tides, waves temperature, and storm activity. Sea levels fluctuate daily, monthly, and seasonally; the highest tides occur in winter and in summer, during new and full moons. Sea levels often rise even higher during El Niño winters, when the Eastern Pacific Ocean is warmer than usual and westerly wind patterns are strengthened.

Coastal flooding usually occurs during winter storms, which bring strong winds and high waves. Storm winds tend to raise water levels along the coast and produce high waves at the same time, compounding the risk of damaging waves—a doubling of wave height is equivalent to a four-fold increase in wave energy. When these factors coincide with high tides, the chances for coastal damage are greatly heightened.

As sea levels rise, flood stages in the Sacramento/San Joaquin Delta of the San Francisco Bay estuary may also rise, putting increasing pressure on Delta levees. This threat may be particularly significant because recent estimates indicate the additional force exerted upon the levees is equivalent to the square of the water level rise. Estimates using historical observations and climate model projections suggest that extreme high water levels in the Bay and Delta will increase markedly if sea level rises above its historical rate. These extremes are most likely to occur during storm events, leading to more severe damage from waves and floods.

Top left & right: Photos.com. Bottom: CA Fuel Cell Partnership



Cleaner energy and vehicle technologies can help California reduce global warming emissions, improve air quality, and protect public health.

Managing Global Warming

Continued global warming will have widespread and significant impacts on the Golden State. Solutions are available today to reduce emissions and minimize these impacts.

The projections presented in this analysis suggest that many of the most severe consequences that are expected from the medium and higher warming ranges could be avoided if heat-trapping emissions can be reduced to levels that will hold temperature increases at or below the lower warming range (i.e., an increase of no more than 5.5°F). However, even if emissions are substantially reduced, research indicates that some climatic changes are unavoidable. Although not the solution to global warming, plans to cope with these changes are essential.

California's actions can drive global progress to address global warming.

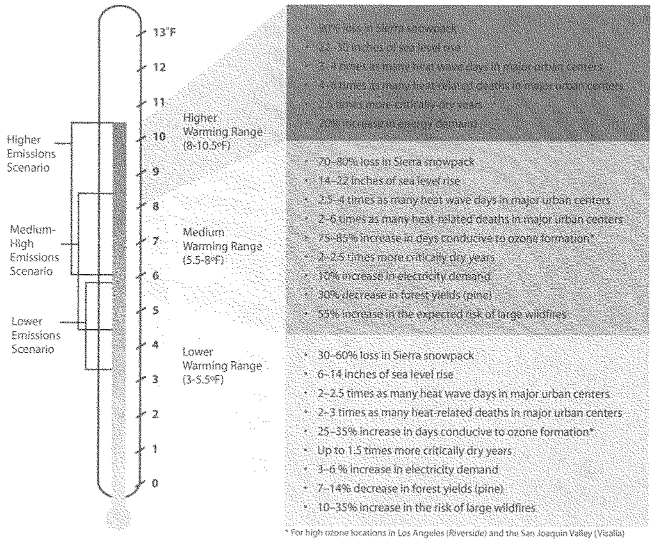
Reducing Heat-Trapping Emissions

Reducing heat-trapping emissions is the most important way to slow the rate of global warming. On June 1, 2005, Governor Arnold Schwarzenegger signed an executive order (#S-3-05) that sets goals for significantly lowering the state's share of global warming pollution. The executive order calls for a reduction in heat-trapping emissions to 1990 levels by 2020 and for an 80 percent emissions reduction below 1990 levels by 2050. These emission reduction targets will help stimulate technological innovation needed to help transition to more efficient and renewable transportation and energy systems.

Coping with Unavoidable Climatic Changes

Because global warming is already upon us, and some amount of additional warming is inevitable, we must prepare for the changes that are already under way.

Summary of Projected Global Warming Impact, 2070–2099
(as compared with 1961–1990)



- 90% loss in Sierra snowpack
- 22–30 inches of sea level rise
- 3–4 times as many heat wave days in major urban centers
- 4–6 times as many heat-related deaths in major urban centers
- 2.5 times more critically dry years
- 20% increase in energy demand

- 70–80% loss in Sierra snowpack
- 14–22 inches of sea level rise
- 2.5–4 times as many heat wave days in major urban centers
- 2–6 times as many heat-related deaths in major urban centers
- 75–85% increase in days conducive to ozone formation*
- 2–2.5 times more critically dry years
- 10% increase in electricity demand
- 30% decrease in forest yields (pine)
- 55% increase in the expected risk of large wildfires

- 30–60% loss in Sierra snowpack
- 6–14 inches of sea level rise
- 2–2.5 times as many heat wave days in major urban centers
- 2–3 times as many heat-related deaths in major urban centers
- 25–35% increase in days conducive to ozone formation*
- Up to 1.5 times more critically dry years
- 3–6 % increase in electricity demand
- 7–14% decrease in forest yields (pine)
- 10–35% increase in the risk of large wildfires

* For high ozone locations in Los Angeles (Riverside) and the San Joaquin Valley (Visalia)

Preparing for these unavoidable changes will require minimizing further stresses on sensitive ecosystems and implementing management practices that integrate climate risks into long-term planning strategies.

California's Leadership

California has been a leader in both the science of climate change and in identifying solutions. The California Climate Change Center is one of the first—and perhaps the only—state-sponsored research institution in the nation dedicated to climate change research, and other state agencies such as the Air Resources Board support similar research. Continuing this strong research agenda is critical for developing effective strategies for addressing global warming in California.

The state has also been at the forefront of efforts to reduce heat-trapping emissions, passing precedent-setting policies such as aggressive standards for tailpipe emissions, renewable energy, and energy efficiency. However, existing policies are not likely to be sufficient to meet the ambitious emission reduction goals set by the governor. To meet these ambitious goals California will need to build on its legacy of environmental leadership and develop new strategies and technologies to reduce emissions.

California alone cannot stabilize the climate. However, the state's actions can drive global progress. If the industrialized world were to follow the emission reduction targets established in California's executive order, and industrializing nations reduced emissions according to the lower emissions path (B1) presented in this analysis, we would be on track to keep temperatures from rising to the medium or higher (and possibly even the lower) warming ranges and thus avoid the most severe consequences of global warming.

> By reducing heat-trapping emissions, severe consequences can be avoided.

The full text of the Climate Scenarios analysis overview report, and the core scientific papers that comprise this analysis, are online at *www.climatechange.ca.gov*. The scientists that participated in this effort are:

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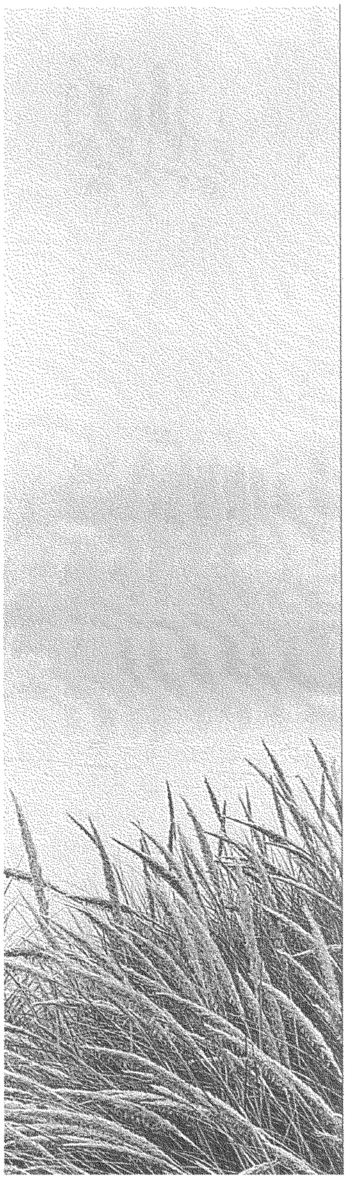

CALIFORNIA

Climate

ACTION TEAM

Executive Summary

Climate Action Team Report to
Governor Schwarzenegger
and the California Legislature

March 2006

CALIFORNIA ENVIRONMENTAL
PROTECTION AGENCY

THE CLIMATE ACTION TEAM REPORT IS ORGANIZED IN 3 VOLUMES

1. CLIMATE ACTION TEAM REPORT

- Executive Summary
- Climate Action Team Report to Governor Schwarzenegger and the Legislature

2. ATTACHMENTS

- Documentation of Inputs to Macroeconomic Assessment
- Climate Action Team Questions & Answers
- State of California's Action to Address Global Climate Change
- State Agency Work Plans
- Cap and Trade Program Design Options
- Learning from State Action on Climate Change
- Scenarios of Climate Changes in California

3. APPENDICES

- An Assessment of Impacts of Future CO2 and Climate on Agriculture
- Analysis of Climate Effects on Agricultural Systems
- Climate Change: Challenges and Solutions for California Agricultural Landscape
- Climate Change and Wildfire in and Around California: Fire Modeling and Loss Modeling
- The Response of Vegetation Distribution, Ecosystem Productivity, and Fire in California Climate Scenarios Simulated by the MCI Dynamic Vegetation Model
- Fire and Sustainability: Considerations for California's Altered Future Climate

APPENDICES (CONT)

- Climate Change Impact on Forest Resources
- Climate Change Impacts on Water for Agriculture in California: A Case Study in the Sacramento Valley
- Climate Warming and Water Supply Management in California
- Predicting the Effects of Climate Change on Wildfire Severity and Outcomes in California Preliminary Analysis
- Public Health-Related Impacts of Climate Change
- Preparing for the Impacts of Climate Change in California: Opportunities and Constraints for Adaptation
- Climate Change Impacts on High Elevation Hydropower Generation in California's Sierra Nevada: A case Study in the Upper American River
- Predictions of Climate Change Impacts on California Water Resources Using CALSIM II: A Technical Note
- Climate Change and Electricity Demand in California
- Projecting Future Sea Level
- Climate Scenarios for California
- Climate Change Projected Santa Ana Fire WeatherOccurrence
- Incorporating Climate Change into Management of California's Water Resources

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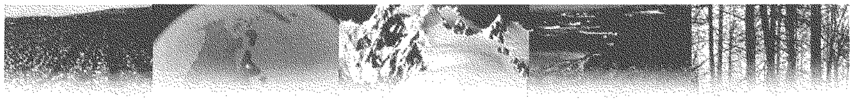
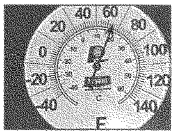


Introduction

Climate change is widely recognized by scientists throughout the world to be one of the most daunting challenges of our time. Human activities are altering the chemical composition of the atmosphere through the rapid buildup of climate change emissions—primarily carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Concentrations of these gases in the ambient atmosphere are increasing at a rate not experienced for millions of years, according to ice core samples and other scientific studies.

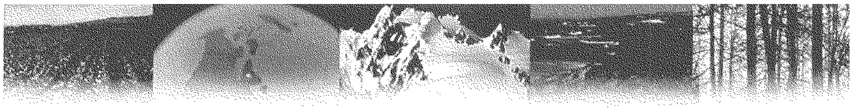
Although there is some uncertainty about exactly how and when the earth's climate will respond to increasing concentrations of climate change emissions, observations—in conjunction with climate models—indicate that detectable changes are underway.

These observed changes go beyond a global mean rise in temperature and include changes in regional temperature extremes, precipitation, soil moisture, and sea level. All of these changes could have significant adverse effects on water resources and ecological systems, as well as on human health and the economy. Implementation of precautionary and proactive measures is imperative if climate change emissions are to be reduced and communities are to adapt successfully to the adverse impacts.



California is the twelfth largest source of climate change emissions in the world, exceeding most nations. Actions taken in this State make a difference; not only because we are a major contributor to the problem but also because California is known throughout the world as a leader in addressing public health and environmental issues.

California has long been a pioneer in studying the impact of climate change and taking action to reduce our carbon "footprint." The California Energy Commission's energy efficiency standards for buildings and appliances are the most stringent in the world. The California Air Resources Board's vehicle climate change standards are the first of their kind in the United States. The State's Renewable Portfolio Standard was accelerated by Governor Schwarzenegger to require, by 2010, that 20% of all power used in California be generated from renewable resources. The California Public Utilities Commission recently adopted Governor Schwarzenegger's Solar Building Initiative that continues California's progressive approach to economic growth and technological innovation hand-in-hand with protection of public health and the environment.



On June 1, 2005, Governor Schwarzenegger signed an Executive Order establishing climate change emission reduction targets for the State and declared, *"...the debate is over. We know the science. We see the threat. And we know the time for action is now."* The Executive Order placed Cal/EPA as the lead coordinating State agency. The Secretary of Cal/EPA created a multi-agency team, the Climate Action Team, to meet the directives in the Executive Order.

California companies have acted voluntarily in support of the Governor's targets. More than 60 companies have joined the voluntary California Climate Action Registry; are reporting their emissions; and are discovering best practices to reduce emissions further. In the Silicon Valley, dozens of corporations have committed to significantly reducing climate change emissions.

The Climate Group, an independent, nonprofit organization dedicated to advancing business and government leadership on climate change, tracks climate change emission reduction efforts of Fortune 500 companies such as DuPont, Honda, Johnson and Johnson, and Kodak. The Climate Group reports on emissions reduced and dollars saved by these companies through voluntary actions.

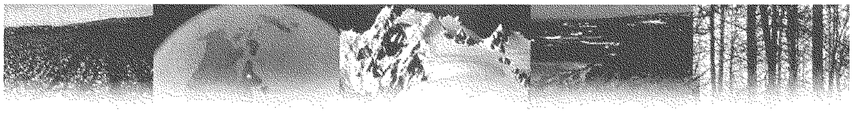
Technologies that reduce climate change emissions are increasingly in demand in the world marketplace. California companies are both investing in those technologies and finding new opportunities to meet this demand.

Public Process

In preparation of this report, the Climate Action Team conducted nine public meetings. More than 100 individuals and representatives of organizations presented testimony. Since the Climate Action Team released its initial draft report in December 2005, more than 15,000 comments have been submitted. The comments overwhelmingly praise the efforts of the Climate Action Team and recognize that climate change is a serious problem facing California. They are primarily supportive of strategies to reduce climate change emissions and develop adaptation measures to mitigate the inevitable adverse consequences.

Comments ranged in specificity. Comments expressed most often were:

- The State should establish a cap on emissions and a market-based system of emissions trading, auctioning, and/or offsets. These commenters assert that a firm and statutory cap on emissions will provide the signal that will challenge Californians to reduce climate change emissions in the most cost-effective manner. Further, these commenters believe a firm cap and/or market-based approach will stimulate market innovation and grow the economy.
- Alternatively, some commenters said that California should take a slower approach that builds on voluntary efforts. Many of these commenters also prefer that climate change be addressed on a national or international level.
- A number of commenters wanted the State to conduct additional analyses of the impacts of climate change on low-income and minority communities.



Key Recommendations

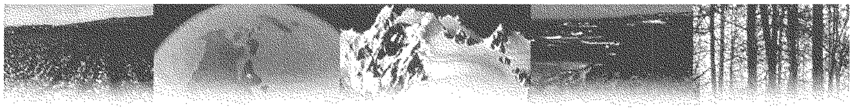
This final report has been revised from the December 2005 draft to reflect the comments, recommendations, and suggestions that have been submitted. The final report proposes a path to achieve the Governor's targets that will build on voluntary actions of California businesses, local government and community actions, and State incentive and regulatory programs. The Governor's climate change emission reduction targets are achievable with economic benefit for California.

The climate strategies set forth in this report are in various stages of development. Some of the strategies, such as the California Solar Initiative, are being implemented this year. Other strategies, such as those related to biofuels, may require statutory modification this year for implementation to proceed. Still others, such as Smart Land Use and Intelligent Transportation and Semiconductor Industry Targets, are conceptually sound but require further analysis and development, there should be allowed to evolve over the next two years. The Climate Action Team preliminary economic assessment, which is based on the Environmental Dynamic Revenue Model, indicates that implementation of these strategies will result in 83,000 new jobs and an increase in personal income of $4 billion by 2020.

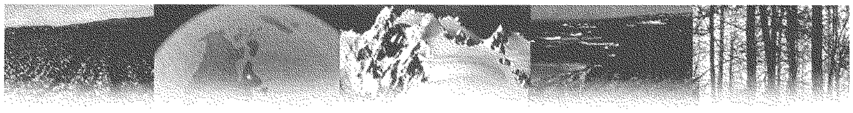
The Climate Action Team process for developing this report has been successful and the Team should be charged with the next phase of activity. Since the signing of the Executive Order, the Climate Action Team,under the leadership of Cal/EPA, has provided a forum for coordinating State agency actions, program development, and budget proposals in addition to this report. Continuing allows for collaboration, reduced internal competition and conflict, and provides a single point of contact.

The Climate Action Team recognizes that reducing climate change emissions is challenging and will need to be addressed in a deliberative on-going manner. The Team also recognizes that many of the reductions will come from technological innovations that are not yet fully developed. We have identified key recommendations that will help ensure the Governor's targets are met:

- A multi-sector, market-based system uses economic incentives to lower costs, protect economic growth, and promote innovation. The Climate Action Team should proceed with the development of a multi-sector, market-based program which considers trading, emissions credits, auction, and offsets. The Climate Action Team should develop a multi-sector, market-based program and make a recommendation to the Governor on the structure for such a program no later than January 1, 2008. The Governor's 2020 climate change emission reduction target (to reach 1990 emission levels) should be the basis for an emissions cap in the development of the program. The Climate Action Team should consider working with other western States to develop a multi-State program to minimize emissions leakage.

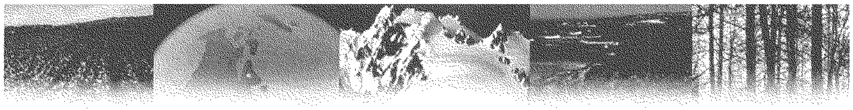


- Mandatory emissions reporting from the largest sources—oil and gas extraction, oil refining, electric power, cement manufacturing, and solid waste landfills—that build on the California Climate Action Registry, is essential. Mandatory reporting will ensure an accurate inventory of emissions, which is critical to ensure that decision-making is based on real emissions and emission reductions. Equally essential are provisions for early action credit and a mechanism to ensure that companies are not penalized for early action. Early action will be attributed to California businesses that have voluntarily joined the California Climate Action Registry and have reduced emissions. Although the voluntary Climate Action Registry provides the foundation, the Climate Action Team believes mandatory reporting must occur through a State government agency.
- A multi-generational public education campaign should be implemented to ensure that the public is informed about the issue of climate change and what they can do to reduce emissions and adapt to adverse consequences. Such a program can build upon successful campaigns in place, such as Flex Your Power. The Education and the Environment Initiative mandates the development of a unified strategy to bring education about the environment into California's K–12 schools through California's Environmental Principles & Concepts and a standards-aligned, State Board of Education-approved model curriculum. It is essential that California's children understand the impacts and consequences of climate change on the State's resources as well as mitigation and adaptation strategies.
- The macroeconomic analysis should be updated to reflect refined data collected over the next year. A cost-effectiveness analysis of all the strategies recommended in this report should also be developed. Both should be completed by July 2007 and should incorporate an external review process.
- Transportation is the largest source of climate change emissions in California. The California Air Resources Board's vehicle climate change standards address a significant portion of the transportation sector. However, an aggressive alternative fuels program will significantly reduce climate change emissions. The California Energy Commission, working with Cal/EPA and its boards and departments and the California Department of Food and Agriculture, are currently developing an aggressive biofuels program that will be available this Spring. This biofuels program should be considered an essential component of the effort to reduce California's carbon footprint.
- The Governor's climate change emission reduction targets are based in part on the planning assumptions in the California Energy Commission's Integrated Energy Policy Report. Specifically, the report recommends that all long-term commitments to new electricity generation for use in the State must come from sources with climate change emissions equivalent to or less than a new combined cycle natural gas power plant. The California Public Utilities Commission's recently adopted proposal for an electricity sector carbon policy is generally consistent with the Integrated Energy Policy Report and will set forth a regulatory scheme for enforcing such a policy applicable to investor-owned utilities.



The Climate Action Team recommends the policy, including an accountability mechanism, in the Integrated Energy Policy Report be extended to apply to all load-serving entities in the State, including municipal utilities, electric service providers, and community choice aggregators. The California Public Utilities Commission will work with the Climate Action Team so that this effort is consistent with the development of a multi-sector market-based program.

- All utilities should meet the energy efficiency goals and the Renewable Portfolio Standard required of investor-owned utilities. The State has adopted energy efficiency goals and a Renewable Portfolio Standard for investor-owned utilities. Publicly-owned utilities should match this level of performance and account for their achievements in a manner consistent with that of investor-owned utilities. Because publicly-owned utilities provide 25% to 30% of the electricity used in California, these entities are essential to the State's overall goal to reduce electricity demand and increase the State's use of renewable resources. The California Energy Commission should work with the publicly-owned utilities to develop an accurate accounting system that captures climate emission reduction efforts by publicly-owned utilities so that their performance can be evaluated comparatively to investor-owned utilities.
- The California Climate Action Registry, in cooperation with the California Energy Commission, should develop emission reporting protocols for local government. Local governments are already contributing to the effort to reduce climate change emissions and an accurate tracking system of their contributions is essential.
- Over time, funding will be needed to implement the strategies set forth in this plan and to provide incentives for industry to develop emission reduction technologies for use in California and abroad. A coordinated investment strategy can leverage the talent of California's universities, community colleges, and other entities to lead technology development and train the next generation of technicians that will be needed to operate and service those technologies. A public goods charge for transportation that funds key strategies to reduce climate change emissions and to reduce dependence on petroleum should be considered. Over dependence on petroleum fosters undesirable geopolitical, economic, energy, and environmental consequences. Other possible funding could come from the Public Interest Energy Research program at the California Energy Commission, other State funds, or philanthropic and corporate investment. The current electricity sector and natural gas public goods charges should continue at projected levels. Any new funding concepts require additional study and review until the preliminary recommendations noted above can be more fully developed. Accordingly, the 2006–07 Governor's budget proposes $7.2 million across several State agencies to begin the additional work.



Executive Order S-3-05

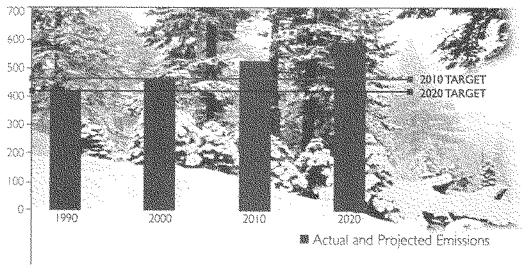
In recognition of the risks associated with climate change and the imperative for California to act, Governor Schwarzenegger signed Executive Order S-3-05. This Executive Order established Statewide climate change emission reduction targets:

- By 2010, reduce emissions to 2000 levels;
- By 2020, reduce emissions to 1990 levels;
- by 2050, reduce emissions to 80 percent below 1990 levels.

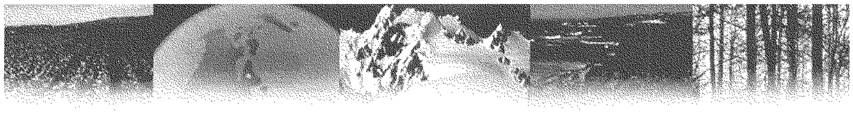
The red and blue lines in figure ES-1 illustrate Governor Schwarzenegger's target.

Figure ES-1

California's Climate Change Emissions and Targets



The Executive Order also directed the Secretary for Environmental Protection to prepare a report to the Governor and the Legislature by January 2006 that defines actions necessary to meet the Governor's targets. This effort is to be coordinated with other key agencies to ensure the targets are met. Progress towards meeting the targets must be provided in subsequent reports every two years. These reports must also include scientific analysis of climate change impacts on the State and adaptation measures that can be taken to best respond to the adverse consequences of climate change.



Consistent with the directives of the Executive Order, a Climate Action Team was formed. The Team is comprised of knowledgeable representatives from the following State agencies:

- Business, Transportation and Housing Agency;
- Department of Food and Agriculture;
- Resources Agency;
- Air Resources Board;
- Energy Commission;
- Integrated Waste Management Board; and
- Public Utilities Commission.

The Climate Action Team has developed a list of emission reduction strategies that could meet the Governor's targets. Further, the Climate Action Team reviewed the work by some of California's top scientists regarding the impacts of climate change on California and potential adaptation measures to combat adverse impacts.

Strategies Recommended to Reduce Climate Change Emissions

The strategies being recommended by the Climate Action Team are shown in Tables ES-1 through ES-4. Although the Climate Action Team recommends additional development on all of these strategies at this time, the implementing agencies will proceed through their existing regulatory, public, and stakeholder processes for each of the strategies. Modifications to the strategies may be necessary as a result of those processes. Additional strategies may also emerge over time. Modifications and additions will be made as appropriate over the course of the Climate Action Team report updates.

Many of the strategies listed in Tables ES-1 through ES-4 also reduce ozone and criteria and toxic pollutants. (Criteria pollutants are a type of pollutant: oxides of nitrogen, carbon monoxide, and hydrocarbons). Although the degree to which they contribute to climate change has not been fully quantified, ozone, most criteria pollutants, and particulate matter emissions are being evaluated for their climate-forcing potential. Further iterations of this report will update the Governor and Legislature on the results.

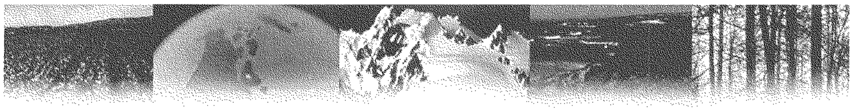


Table ES-1 lists all of the strategies that Cal/EPA will implement over the next two years. By 2020, the Air Resources Board's vehicle climate change emission standards will provide the largest emission reductions of any of the strategies being recommended by the Climate Action Team. The large auto manufacturers are currently challenging California's right to set climate change emission standards for vehicles. Governor Schwarzenegger has pledged his support in defending the State's right to require the sale of cleaner cars.

Table ES-1

Environmental Protection Agency

Climate Change Emission Reductions (Million Metric Tons CO_2 Equivalent)	2010	2020
• *Air Resources Board*		
· Vehicle Climate Change Standards	1	30
· Diesel Anti-Idling	1	1.2
· Other New Light Duty Vehicle Technology Improvements	0	4
· HFC Reduction Strategies	2.7	8.5
· Transport Refrigeration Units, Off-Road Electrification, Port Electrification (ship to shore)	<1	<1
· Manure Management	0	1
· Semi Conductor Industry Targets (PFC Emissions)	2	2
· Alternative Fuels: Biodiesel Blends	<1	<1
· Alternative Fuels: Ethanol	<1	<3.2
· Heavy-Duty Vehicle Emission Reduction Measures	0	3
· Reduced Venting and Leaks in Oil and Gas Systems	1	1
· Hydrogen Highway	Included*	
• *Integrated Waste Management Board*		
· Achieve 50% Statewide Recycling Goal	3	3
· Landfill Methane Capture	2	3
· Zero Waste—High Recycling	3	

* The benefits of the Hydrogen Highway have been captured in other programs such as the Vehicle Climate Change Standard and Green Buildings Initiative.

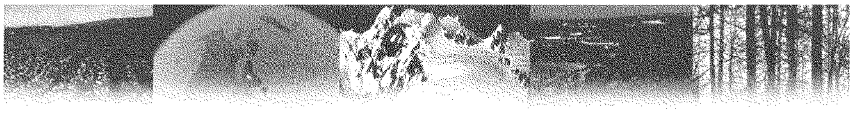


Table ES-2 lists all of the strategies that Resources Agency will implement over the next two years. The Forest management efforts promise not only climate change emission reductions but also protect biodiversity, water quality and habitat resources. For three decades, the California Energy Commission has led the world with the most progressive new building and appliance efficiency standards. These efficiency standards have provided substantial climate change emission reductions and have saved consumers about $1,000 per household in California. Finally, by reducing the energy used to transport and delivery of water in the State and increasing water use efficiency California can both protect our water supply and reduce climate change emissions.

Table ES-2
Resources Agency

Climate Change Emission Reductions (Million Metric Tons CO_2 Equivalent)	2010	2020
• *Department of Forestry*		
˙ Forest Management	1-2	2-4
˙ Forest Conservation	4.2	8.4
˙ Fuels Management/Biomass	3.4	6.8
˙ Urban Forestry	0	3.5
˙ Afforestation/Reforestation	0	12.5
• *Energy Commission*		
˙ Building Energy Efficiency Standards in Place	1	2
˙ Appliance Energy Efficiency Standards in Place	3	5
˙ Fuel-Efficient Replacement Tires & Inflation Programs	1.5	1.5
˙ Building Energy Efficiency Standards in Progress	TBD	TBD
˙ Appliance Energy Efficiency Standards in Progress	TBD	TBD
˙ Cement Manufacturing	<1	<1
˙ Municipal Utility Energy Efficiency Programs/Demand Response	1	5.9
˙ Municipal Utility Renewable Portfolio Standard	<1	3.2
˙ Municipal Utility Combined Heat and Power	0	<1
˙ Municipal Utility Electricity Sector Carbon Policy	3	9
˙ Alternative Fuels: Non-Petroleum Fuels	TBD	TBD
˙ Building Energy Efficiency Standards in Place	1	2
• *Department of Water Resources*		
˙ Water Use Efficiency	0.4	1.2

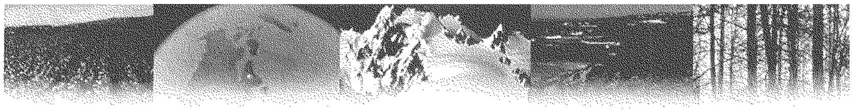


Table ES-3 lists all of the strategies that other State agencies will implement over the next two years. Many participants at the Climate Action Team public meetings, particularly in Southern California, indicated that smart land use and increased transit availability should be a priority in the State. The participation of Business, Transportation and Housing Agency on the Climate Action Team has highlighted the fact that such strategies can provide substantial climate change emission reductions. Similarly the efforts of the Department of Food and Agriculture and the State and Consumer Services Agency provide benefits beyond their climate change emission reduction potential.

Table ES-3

Other State Agencies

Climate Change Emission Reductions (Million Metric Tons CO_2 Equivalent)	2010	2020
• *Business Transportation and Housing*		
Measures to Improve Transportation Energy Efficiency	1.8	9
Smart Land Use and Intelligent Transportation	5.5	18
• *Department of Food and Agriculture*		
Conservation Tillage/Cover Crops	TBD	
Enteric Fermentation	<1	<1
• *State and Consumer Services Agency*		
Green Buildings Initiative	0.5	1.8
Transportation Policy Implementation	Under Review	

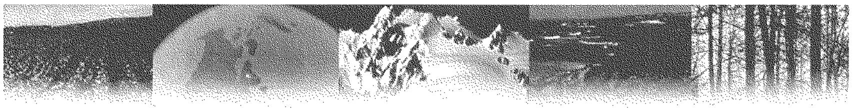


Table ES-4 lists all of the strategies that the Public Utilities Commission will implement over the next two years. Working in cooperation with the Energy Commission, the Public Utilities Commission has implemented the most progressive Renewable Portfolio Standard in the nation. The Public Utilities Commission has also been progressive in energy efficiency and clean energy programs for investor-owned utilities. Many stakeholders indicated that these programs should apply to the publicly-owned utilities as well.

Climate Change Emission Reductions (Million Metric Tons CO_2 Equivalent)	2010	2020
Accelerated Renewable Portfolio Std to 33% by 2020 (includes load-serving entities)	5	11
California Solar Initiative	0.4	3
Investor-Owned Utility (IOU) Energy Efficiency Programs (including LSEs)	4	8.8
IOU Additional Energy Efficiency Programs/Demand Response	NA	6.3
IOU Combined Heat and Power Initiative	1.1	4.4
IOU Electricity Sector Carbon Policy	1.6	2.7

Table ES-4

Public Utilities Commission

The Governor's Targets Are Achievable

Based on the emission reduction potential demonstrated in the tables above, and illustrated in Figure ES-2 below, it is clear the Governor's targets are achievable. However, continued top-down leadership—as has been demonstrated by this Governor, and the coordinated agency-level effort that has been achieved via the Climate Action Team—will be essential to success.

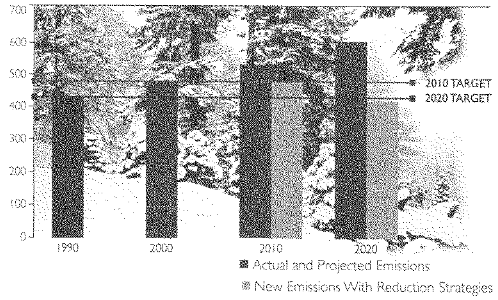
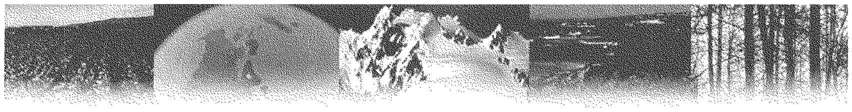


Figure ES-2

California Climate Change Emissions and Targets After Implementing Emission Reduction Strategies



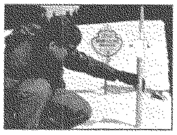
Scenario Analysis

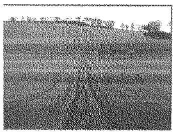
The scientific analysis to determine the impacts of climate change on California, and potential adaptation measures, is referred to here as the Scenario Analysis. Three scenarios of future global climate change emissions were selected to determine the range of possible impacts from climate change. These scenarios come directly from the Intergovernmental Panel on Climate Change 2001 report and represent higher, medium-high, and low-emission scenarios.

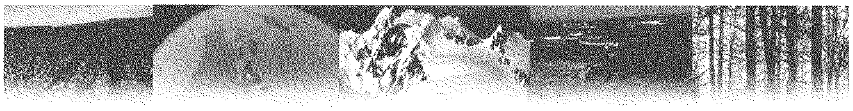
This analysis considers impacts on water resources, public health, agriculture, coastline, forests, and electricity demand based on the three emission scenarios. The analysis in this report stems directly from the ongoing work being done by the California Energy Commission. It represents a mid-point check in the current five-year plan the California Energy Commission has underway to evaluate climate change impacts in the State.

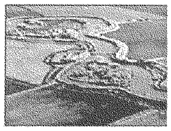
The analysis indicates that if emissions are not reduced significantly, there is a strong likelihood that the amount of warming toward the end of the century will exceed 3 °F. In the analyses, as the warming increases above this level to as much as 10 °F, some of the consequences of climate change in California may become quite severe, including:

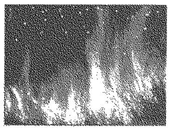
- Sierra snowpack, which accounts for approximately half of the surface water storage in the State, would decline by 70% to as much as 90% over the next 100 years, threatening California's water supply.
- Climate change will slow progress toward attainment or air quality standards and increase control costs by increasing emissions, accelerating chemical processes, and raising inversion temperatures during summertime stagnation episodes. The number of days meteorologically conducive to pollution formation may rise by 75% to 85% in the high ozone areas of Los Angeles and the San Joaquin Valley by the end of the century under the higher temperature scenario, and by 25% to 35% under the lower temperature scenario.
- The agriculture industry is one of the largest industries in the State. Potential impacts from limited water storage, increasing temperatures, and salt water in the Sacramento and San Joaquin Delta would pose increasing challenges for this industry. Direct threats to the structural integrity of the State's levee and flood control systems would also have immense implications for the State's fresh water supply, food supply, and overall economic prosperity.









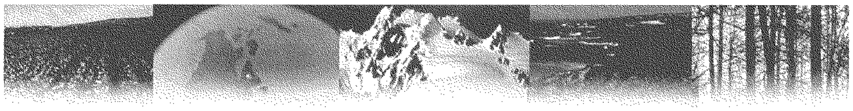


- Higher potential for erosion of California's coastlines and sea water intrusion into the State's Delta and levee systems may result as sea levels rise above present levels by as much as 35 inches during the next 100 years. This would exacerbate flooding in already vulnerable regions.
- Pest infestation and increasing temperatures would make the State's forest resources more vulnerable to fires. Forest fires not only adversely affect the State's economy as a result of both suppression and damage costs, they also decrease air quality, damaging public health and visibility.
- Rising temperatures will increase electricity demand, especially in the hot summer season. By 2020, this would translate to a 1% to 3% increase in electricity demand resulting in potentially hundreds of millions of extra expenditures.

These impacts will affect everyone. However, in many cases, the most vulnerable are children, the elderly, and the frail who suffer disproportionately when pollution increases and temperatures rise. Low-income and minority communities are also at greater risk as limited resources and current disparities in health care limit the capacity of residents in these communities to adapt and respond.

The scenario analysis also included an evaluation of adaptation measures that could be taken to respond to the adverse consequences of climate change. This evaluation is only beginning, but at this point, the adaptation measures identified include the following:

- Study and use modern probabilistic weather and hydrological forecasts for the management of water reservoirs and other resources in the State.
- Develop and implement heat emergency action plans with special emphasis on providing assistance to the elderly and those living in housing without air conditioning units.
- Adopt short-term actions to improve our ability to live within California's fire-prone landscapes while maintaining the functioning and structure of ecosystems upon which we depend.
- Mitigate the impact of high temperatures on electricity demand with energy efficiency programs, increased penetration of photovoltaic systems and other forms of renewable energy, and the implementation of measures designed to reduce the urban heat island effect.



Market-Based Options For California

Market-based programs can be integral to California's strategy for reducing climate change emissions. Establishing firm attainment directives for reduction of greenhouse gas emissions, coupled with a market-based program, allows for flexibility in meeting a cap at the least possible cost.

To maximize its effectiveness, a market-based program in California should encompass as many sources and as large a geographic region as possible. However, the breadth of coverage must be tempered by administrative realities and source-specific considerations. Two alternatives for defining the scope of California's market-based program are a sector-based emissions cap and a fuels-based carbon cap.

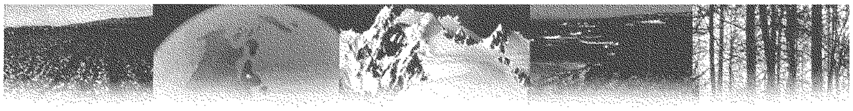
A sector-based emissions cap would cover up to 30 percent of the State's climate change emissions by focusing on five key industries: electric power (including emissions from imported electricity); oil refining; oil and gas extraction; solid waste landfills; and cement manufacturing. Mobile sources, the largest source of climate change emissions in the State, are not recommended for inclusion under a sector-based emissions cap at this time.

As an alternative to a sector-based cap, climate change emissions can be reduced by capping the total carbon content of oil, gas, and coal consumed in the State. This approach encompasses all sectors that use fossil fuels, including those indicated in the paragraph above, covering 75 percent of the State's climate change emissions. All options for reducing fossil fuel combustion across all sectors can contribute to achieving the carbon cap. Additionally, all sectors are put on an equal footing as it relates to their use of fossil fuels.

A hybrid approach can be considered, for example, in which emissions from the electric power industry (including imported power) are capped and the carbon content of fuels is capped.

Emission offsets can be used to motivate emission reductions from sources outside the cap. Emission offsets help lower the cost of reducing emissions: facilities covered by the cap can purchase low-cost emission reductions from outside the cap as a means of complying with their emission limit. To ensure that offsets do not compromise the emission reduction goal of the program, they must be real, verifiable, quantifiable, in excess to any regulatory requirement, and not counted toward any other climate change emission reduction targets.

The primary weakness associated with implementing a market-based program in California is that it will be vulnerable to emission "leakage." If the State implements the program without other States, there will be an incentive for production to shift to neighboring States to avoid the cap. If this occurs, emissions may decline in the State, only to increase in neighboring States. A coordinated national approach to capping climate change emissions within an international framework would be the best approach for addressing this leakage problem. In the absence of national action,



or even regional action, the leakage issues may be partially addressed through the design of the program. As part of the implementation of a market-based program, data should be collected over time to assess the extent to which leakage occurs, as well as its impacts on businesses and on the effectiveness of the emissions cap.

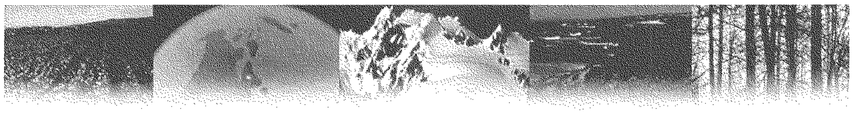
Economic Impact

This report also provides the results of a preliminary assessment of the macroeconomic impacts associated with the climate change emission reduction strategies. The results show that the overall impacts of the climate change emission reduction strategies on California's economy are expected to be positive. Specifically, when the emission reduction strategies are considered in total, the resulting impacts on the economy are expected to translate into job and income gains for Californians. For example, in 2020, the implementation of the strategies is expected to result in a net increase of 83,000 jobs and $4 billion, in income, above and beyond the substantial growth that will occur between today and 2020.

The macroeconomic assessment relies on a computable general equilibrium model developed by the University of California, Berkeley called the Environmental Dynamic Revenue Model. This model has been peer reviewed and calibrated to be representative of the California economy. It simulates the functioning of a market economy in which different sectors interact with one another (one sector supplies inputs to another, or purchases the outputs of another) and where prices and production adjust in response to changes caused by government policies applied to specific sectors. The model simulates these relationships among California producers, California consumers, government, and the rest of the world. Because of the interconnection between sectors, an intervention in one sector has impacts on others, which are captured by the model analysis. This model has long been used by the California Air Resources Board and California Energy Commission in the development of certain of their reports and regulations. The Department of Finance also uses a version of this model to determine the revenue impacts of State policies.

The favorable impacts on the economy are possible because of the reduced costs associated with many of the strategies. The additional job growth is expected to come from the net savings to consumers associated with the implementation of the strategies. The savings will, in turn, promote further business expansion and job creation.

A subsequent refined analysis is planned over the next year. The refined analysis will incorporate updated cost and savings estimates for the strategies. It will also assess the cost-effectiveness of the various individual strategies. Thus, the refined economic analysis will provide additional information to decision-makers as they proceed with implementation of the strategies.



Impacts On Low Income And Minority Communities

Cal/EPA has made the achievement of environmental justice an integral part of its activities. Cal/EPA adopted its intra-agency Environmental Justice Strategy in August 2004 and its Environmental Justice Action Plan in October 2004. These policies establish a framework for incorporating environmental justice into Cal/EPA's programs, consistent with the directives of California State law.

As the Climate Action Team developed this report to the Governor and the Legislature, Cal/EPA staff worked with community leaders involved with environmental justice and with environmental and public health organizations to maintain an ongoing dialogue. This approach has worked to successfully implement the administration's environmental justice policies.

The Climate Action Team has undertaken an evaluation to investigate if low-income and minority communities may be impacted disproportionately by climate change, efforts to adapt to climate change, and/or efforts to reduce climate change emissions.

Each agency represented on the Climate Action Team has agreed to incorporate environmental justice considerations into their efforts to support the directives of the Executive Order. To the extent possible, environmental justice considerations are included in the agencies' work plans to implement strategies that reduce climate change emissions.

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